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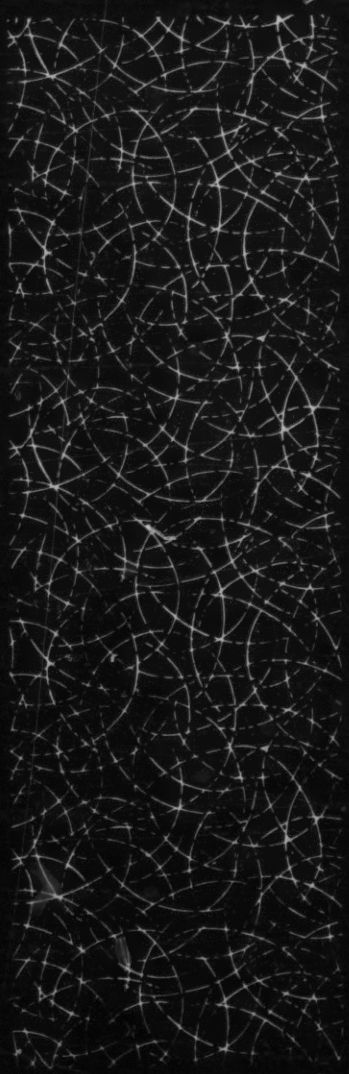
NATIONAL ENERGY BOARD



1990 Annual Report

NATIONAL ENERGY BOARD

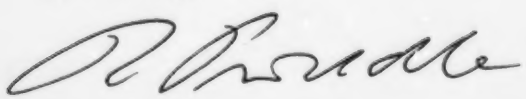
31 March 1991

The Honourable Jake Epp, P.C., M.P.
Minister of Energy, Mines and Resources
Ottawa, Ontario

Dear Mr. Epp:

I am pleased to submit the Annual Report of the National Energy Board for the year ending 31 December 1990 in accordance with the provisions of section 133 of the National Energy Board Act, R.S.C. 1985, c. N-7.

Yours sincerely,



R. Priddle,
Chairman

NATIONAL ENERGY BOARD PROFILE

The National Energy Board is an independent federal regulatory tribunal that was created by an Act of Parliament on 2 November 1959. Since its creation, the Board has played an important role in the development of Canada's energy sector.

The Board's regulatory powers under the *National Energy Board Act* include the authorization of oil, natural gas, and electricity imports and exports, the certification of interprovincial and international pipelines and designated interprovincial and international power lines, and the setting of tolls and tariffs for oil and gas pipelines under federal jurisdiction.

The Act also requires that the Board keep under review the Canadian supply of all major energy commodities, with emphasis on electricity, oil, natural gas, and the by-products derived from oil and natural gas, as well as the demand for Canadian energy in Canada and in export markets.

The Board has specific responsibilities under the *Northern Pipeline Act* and the *Energy Administration Act*. In addition, Board inspectors have been appointed safety officers by the Minister of Labour to administer Part II of the *Canada Labour Code*.

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CHAIRMAN'S LETTER 1990

In 1990 the National Energy Board was again challenged by change: changes in its legislation; changes in its environmental responsibilities; and self-initiated changes in its own regulatory procedures. Here are three examples:

- On June 1, amendments to our Act came into force giving effect to the Canadian Electricity Policy announced in September 1988. The Board immediately provided guidance to the public and the regulated industry as to the steps to be followed to fully implement the new policy. Later in the year, the Board dealt with the first major electricity export application made pursuant to the new legislation. The object is to continue to protect the public interest as it may be affected by electricity exports and international power lines, while seeking to avoid the duplication of measures taken by applicants and their provincial governments. In the normal course of events, Board authorizations will be by permits issued without the need for a public hearing.

- A series of Federal Court decisions in 1989 and 1990 made it clear that the 1984 *Environmental Assessment and Review Process Guidelines Order* has the force of law as far as the Board's regulatory activities are concerned. The NEB has, of course, always concerned itself with environmental matters, particularly in its regulation of pipelines and power lines. It had not, however, been required to take account of the environmental effects of natural gas exports. Starting in 1990, the Board introduced a formal environmental screening process to determine whether and the extent to which there may be potential adverse environmental- and related social-effects from such exports. After careful screening of approximately 40 gas export licence applications, with full public participation, the Board has come to the conclusion that any adverse environmental effects of exporting gas from Southern Canada are likely to be insignificant. As a result, at year-end the Board was seeking, in consultation with the Federal Environmental Assessment Review Office, to have natural gas exports from conventional producing areas in Southern Canada exempted from the screening process. Such an exemption would avoid unnecessary and repetitive examination of individual projects having similar environmental implications.

- In March, the Board decided, after a public hearing, that it would no longer include social benefit-cost analysis as one of the means it uses to determine whether proposed natural gas exports are in the public interest. The Board

found that there is too much uncertainty as to the need for and the results of social benefit-cost analysis to warrant its continued use in gas export licensing. In taking this decision, the Board felt that it could fulfill its mandate under the Act to determine whether proposed exports are in the public interest without using benefit-cost analysis.

The Board's 1990 regulatory workload, measured in terms of the number of hearing days, was about the average of the last five years. However, its regulatory agenda was dominated by the hearing of TransCanada PipeLines' application for an expansion estimated to cost $2.4 billion. The hearing, which lasted 96 days, encompassed issues relating to a number of facets including pipeline construction and related gas exports. However, the question of toll methodology or "who pays for the expansion?" dominated. The panel of five Board Members spent 59 hearing days on these matters before deciding, in early November, that the costs of all facilities proposed for 1991 and 1992 should be rolled into TransCanada's rate base for toll purposes. This means that all shippers on TransCanada's pipeline system will share all of TransCanada's costs of the proposed expansion. The toll methodology segment of the proceeding was hard-fought and the decision was inevitably controversial.

Other public hearings in 1990 involved the Board's sitting in such regional settings as Fort St. John in northeast British Columbia and Kingston in eastern Ontario. It is the Board's policy, particularly where local interests and intervenors are involved, to hold its public hearing locally. One such case was an application by TransCanada PipeLines for construction through the Thousand Islands area of Ontario. This hearing, in which a decision is still pending, sat 21 days, mostly in the evening, to consider an application for the construction of a 25-kilometre natural gas pipeline to the international boundary. In circumstances where proposed facilities may have the potential to affect individuals, communities or the environment, the Board provides the necessary forum for evidence to be presented and argument made with a view to arbitrating the rights involved.

Another item on the Board's agenda in 1990 was the setting of pipeline tolls. Since these tolls involve some $2 billion of revenue annually, this is an important activity. However, in this area too the Board is looking to achieve sensible economies in the regulatory process, while safeguarding the public interest. One approach that the Board believes has merit is the use of pre-

hearing discussions between the pipeline companies and interested parties with a view to negotiating settlements on matters at issue, which then need not be the subject of adversarial proceedings before our Board. Progress has been made in this direction in the case of Westcoast Energy Inc. and the Board is hopeful that similar positive results will follow in respect of TransCanada PipeLines.

The Canadian energy industry functions within a North American market, particularly in matters of oil, natural gas and electricity. It is therefore indispensable for energy regulators in each country to have a mutual awareness of agenda and issues, while always taking decisions on the basis of the facts in particular cases before them. Liaison between the National Energy Board and the United States Federal Energy Regulatory Commission (FERC) continued in 1990 at the staff level and in September the Chairman of the United States Commission and some of his senior staff visited with members of our Board. The purpose was to promote good relations and lines of communication between the two regulatory agencies: discussions were general in nature and did not relate to any applications then before either tribunal. Our relationship with FERC complements the excellent working relationship the Board already has with provincial regulatory agencies.

Effective January 1, 1991, the Board's costs are to be recovered from the companies it regulates. During 1990, much effort went into the development of a scheme which would enable the required revenues of about $27 million annually to be generated in an equitable manner. An industry committee has been set up to provide an interface between the Board and those sectors of the industry which now pay its costs.

The Board has very seriously addressed the size and cost of its operations since the start of Canadian energy deregulation five years ago. As a result the Board's staff complement has been reduced by about one-third over that period. The Board will continue to rationalize its operations with a view to both fulfilling it traditional mandate and to meeting its obligations in the area of environmental protection as effectively as possible.

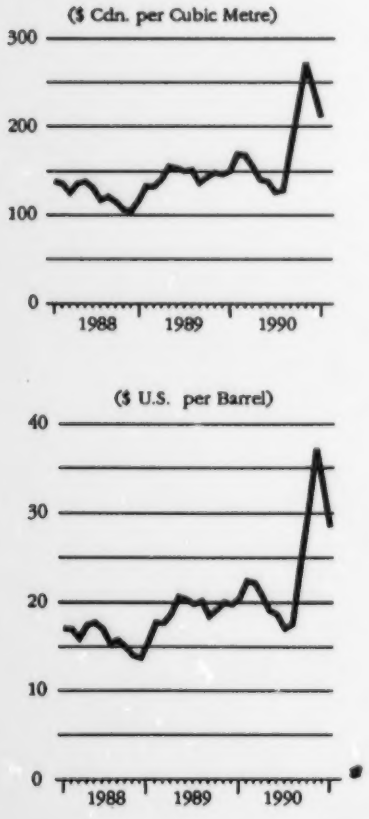
The National Energy Board's membership has been substantially renewed in the last two years. The Board has benefitted from the experience, regional insights and enthusiasm brought to it by its new members, all of whom were on strength throughout 1990. Our staff too demonstrated professionalism and resourcefulness in the varied and challenging circumstances which again confronted the Board in 1990. I'm proud of this group of people and of the respect with which their efforts are regarded both in the energy community and in the country at large.

R. Priddle

International Oil Prices

In 1990, the West Texas Intermediate crude price at Cushing, Oklahoma, averaged $US 24.45 per barrel ($Cdn 179.50 per cubic metre), 25 percent above its 1989 average of $US 19.59. During the first half of the year, world crude oil prices fell - from a January average of $US 22.64 per barrel for West Texas Intermediate to $US 16.87 in June. The August invasion of Kuwait, the trade embargo on Iraq and Kuwait, and the threat of war in the Gulf served to increase the volatility and level of international crude prices in the last half of the year. From its 1990 low in June, West Texas Intermediate rose by about $US 15 per barrel and in the last quarter of 1990 averaged nearly $US 32 per barrel, while fluctuating between $US 26 and $US 40. Canadian oil prices closely followed world oil prices represented by the West Texas Intermediate benchmark.

Figure 1
Average Price of West Texas Intermediate Crude Oil in Cushing



Compared with 1989, world oil demand (excluding that by the centrally planned economies) rose by about 1.3 percent, or 700 000 barrels per day, to 53.0 million barrels per day. Consumption by the less developed countries increased to 15.3 million barrels per day. Demand by the member countries of the Organization of Economic Cooperation and Development (OECD) rose by 0.3 percent; increased consumption in Europe and Japan was partially offset by a decrease in North America. OECD oil consumption was an estimated 37.7 million barrels per day in 1990.

On the supply side, crude production by the members of OECD continued to fall, by an estimated 100 000 barrels per day in 1990 compared with 1989, while developing countries outside the Organization of Petroleum Exporting Countries (OPEC) raised their production by 300 000 barrels per day. Exports from the centrally planned economies declined slightly in 1990 so that, overall, total non-OPEC supply was virtually unchanged from last year.

In the first half of 1990, OPEC crude oil supply averaged about 23.6 million barrels per day, 1.5 million barrels per day over quota. The embargo on Iraqi and Kuwaiti supplies effectively removed four million barrels of crude per day from world markets; however, by November, Saudi Arabia, the United Arab Emirates and Venezuela had substantially raised production levels and virtually eliminated the short-fall.

Natural Gas Prices

The natural gas prices relevant to Canada's international trade are those applicable in the United States. The following comments outline the overall North American gas price situation in 1989 and 1990.

With the exception of seasonal fluctuations, the American wellhead prices of natural gas remained relatively stable throughout 1989 and 1990. In 1990, wellhead prices averaged $US 1.73 per thousand cubic feet for the year compared with $US 1.69 per thousand cubic feet for 1989.

Prices fluctuated to a greater extent in market areas where Canadian exports compete with American supplies. As reported by the United States Department of Energy, city-gate prices in California were up six percent in 1990 over 1989, to $US 2.90 per thousand cubic feet; in the Pacific northwest, they were down by approximately eight percent to $US 2.18 per thousand cubic feet; in the central region, the city gate prices on average were down by three percent to $US 3.11 per thousand cubic feet; and in the northeast they were up by approximately two percent to $US 3.21 per thousand cubic feet.

Energy Production, Consumption and Trade

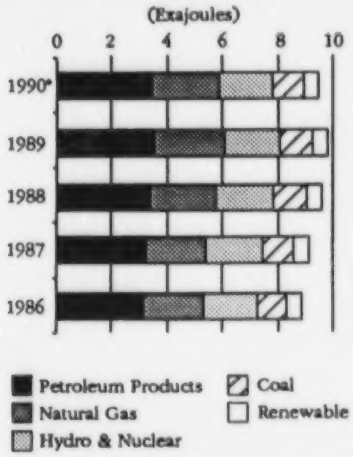
There was a drop in domestic energy demand and a slight decrease in net exports of energy in 1990, resulting in lower production. Nuclear power production fell as a result of the lower output of some nuclear generation plants.

Following an increase of 2.3 percent in 1989, primary energy demand fell some 3.4 percent in 1990, due to lower consumption of natural gas, coal, petroleum products and renewables (down 5 percent, 6 percent, 2.4 percent and 2.2 percent, respectively). Electrical power use remained stable. The drop in primary demand in 1990 was due to a general economic downturn along with higher average temperatures than in 1989.

Total petroleum export volumes, including exports of crude oil and refined petroleum products, rose by about one half of one percent in 1990. Import volumes fell by 10 percent. Average petroleum export prices increased by about 26 percent, while average import prices rose by 19 percent. Consequently, net petroleum export revenues increased by some 80 percent to $3.1 billion while net export volumes rose by nearly 26 percent to about 800 petajoules.

Natural gas export volumes rose by about seven percent in 1990 to about 40.7 billion cubic metres, and revenues increased by about 6.5 percent. The average export price was little changed. Net exports of natural gas amounted to nearly 70 percent of the net energy exports given in Table 1. Net export

Figure 2
Canadian Energy Consumption



*Estimate

Reference: Energy Overview Appendix 1

revenues of natural gas of $3.1 billion represented about 50 percent of the net export revenues shown in Table 1.

Electricity exports remained weak in 1990 - down by 11 percent from 1989 and only 55 percent of the 1988 level. Low water conditions in some parts of the country and restrictions on coal-fired generation in Ontario curtailed electrical energy available for export. Export revenues fell by 17 percent to $547 million. Imports jumped by over 80 percent in 1990 to 56 petajoules. Although Canada was a net electricity exporter in 1990, exports exceeded imports by only three petajoules (Table 1) while export revenues fell short of import costs by about $9 million.

Table 1
Canadian Trade in Petroleum, Natural Gas and Electricity
(Petajoules and Billions of Dollars)

	1988		1989		1990 (e)	
	PJ	$ Billions	PJ	$ Billions	PJ	$ Billions
Exports						
Petroleum (a)	2 304	6.5	2 139	7.0	2 150	8.9
Natural Gas	1 355	3.0	1 432	3.0	1 515	3.2
Electricity (b)	107	0.9	66	0.7	59	0.5
Total Exports	**3766**	**10.4**	**3 637**	**10.7**	**3 724**	**12.6**
Imports						
Petroleum (a)	1 269	4.2	1 506	5.3	1 355	5.8
Natural Gas	24	0.1	46	0.1	28	0.1
Electricity (b)	10	0.1	31	0.3	56	0.6
Total Imports	**1 303**	**4.3**	**1 583**	**5.7**	**1 439**	**6.5**
Net Export Total	**2 463**	**6.1**	**2 054**	**5.0**	**2 285**	**6.1**

The numbers in this table have been rounded

(e) Estimate.
(a) Includes petroleum products and natural gas liquids. Excludes exchanges between Canada and the United States.
(b) Electricity is converted at 3.6 petajoules per terawatt hour on the basis of the energy content of the electricity output. Excludes exchanges between Canada and the United States.

Crude Oil and Petroleum Products

Production of Canadian Crude Oil

Crude oil production in Canada (including conventional light and heavy crude oil, bitumen, pentanes plus, and synthetic crude oil) averaged approximately 261 300 cubic metres per day in 1990, about two percent less than the 1989 level.

The supply of conventional light crude oil continued the declining trend started in 1988, averaging 141 200 cubic metres per day, a decline of four percent from last year's average supply.

In 1990, synthetic crude oil production from the **Syncrude** and **Suncor** mining plants averaged about 32 900 cubic metres per day, one percent higher than in 1989. Synthetic crude oil production from the Newgrade upgrader was about 1 500 cubic metres per day. Operational problems at this plant experienced in 1989 were largely overcome in 1990 and production of synthetic crude oil increased in the last quarter of 1990.

Total pentanes plus production was approximately 18 100 cubic metres per day in 1990, of which about 12 500 cubic metres per day was used as diluent for heavy crude oil and bitumen. This represents virtually no change from the 1989 levels of pentanes plus production and diluent use.

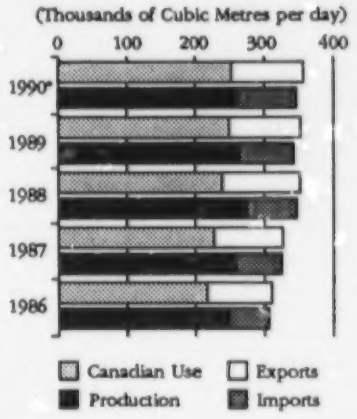
The supply of blended heavy crude (including conventional heavy crude oil, bitumen, and pentanes plus used as diluent) averaged a record high of about 82 000 cubic metres per day in 1990, an increase of five percent over the 1989 level. This was primarily due to increases in conventional heavy crude production throughout the year, but there was also an increase in bitumen production following the sharp rise in crude oil prices in August.

Oil Refining

In 1990, the demand for main petroleum products in Canada fell by about two percent, with declines in demand for motor gasoline and middle distillates partially offset by a rise in demand for heavy fuel oil. Despite the drop in overall demand, refinery production increased by one percent, reflecting a large drop in the level of petroleum product imports.

Canadian refineries purchased domestic crude oil at a rate of 168 700 cubic metres per day, a decrease of almost two percent compared with 1989. Purchases of foreign crude oil rose by eight percent to 84 000 cubic metres per day.

Figure 3
Canadian Crude Oil and Equivalent Supply and Disposition



* Estimate
Reference: Energy Overview Appendix 2

Crude Oil Imports

In 1990, crude oil imports represented 33 percent of total refinery feedstock requirements in Canada. On a regional basis, the Atlantic region depended almost totally on foreign crude oil supply, while Quebec imported nearly 74 percent of its total requirements. Canada sources its imports from a variety of countries, including those within OPEC. Crude oil originating from OPEC countries represented 32 percent of total imports in 1990, down five percent from 1989. North Sea crudes amounted to 64 percent of total crude oil imports, up from 57 percent in 1989.

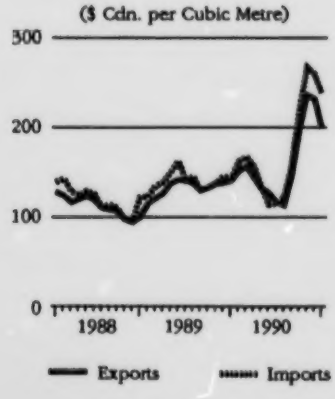
Crude Oil Exports

Total crude oil exports, including synthetic crude oil, were nearly 103 500 cubic metres per day, up slightly from the level recorded in 1989. The 1990 total comprised about 44 500 cubic metres per day of light crude oil and 59 000 cubic metres per day of blended heavy crude oil. The estimated value of crude oil exports in 1990 was $5.5 billion compared with $4.4 billion in 1989.

The American mid-west continued to be Canada's most important market. Smaller volumes were shipped to the eastern seaboard and American Gulf Coast destinations from Montreal, and to the American west coast and Far East markets from Vancouver.

The largest export buyers of light Canadian crude oil in 1990 were **United Refining, Sun Refining, Conoco, Clark Oil and Ashland Oil**; for heavy Canadian crude oil, the largest foreign buyers were **Koch Refining, Mobil and Amoco.** (Refer to Oil Appendix 5 for more details.)

Figure 4
Light Crude Oil Export and Import Prices Netted Back to Edmonton*



* not adjusted for quality

Main Petroleum Product Imports

In 1990, imports of main petroleum products averaged 18 400 cubic metres per day, a decrease of 15 percent compared with 1989. The bulk of this decline occurred in motor gasoline and middle distillates, mainly imported into Quebec; however, a large increase in jet fuel imports into Ontario partially offset this decline.

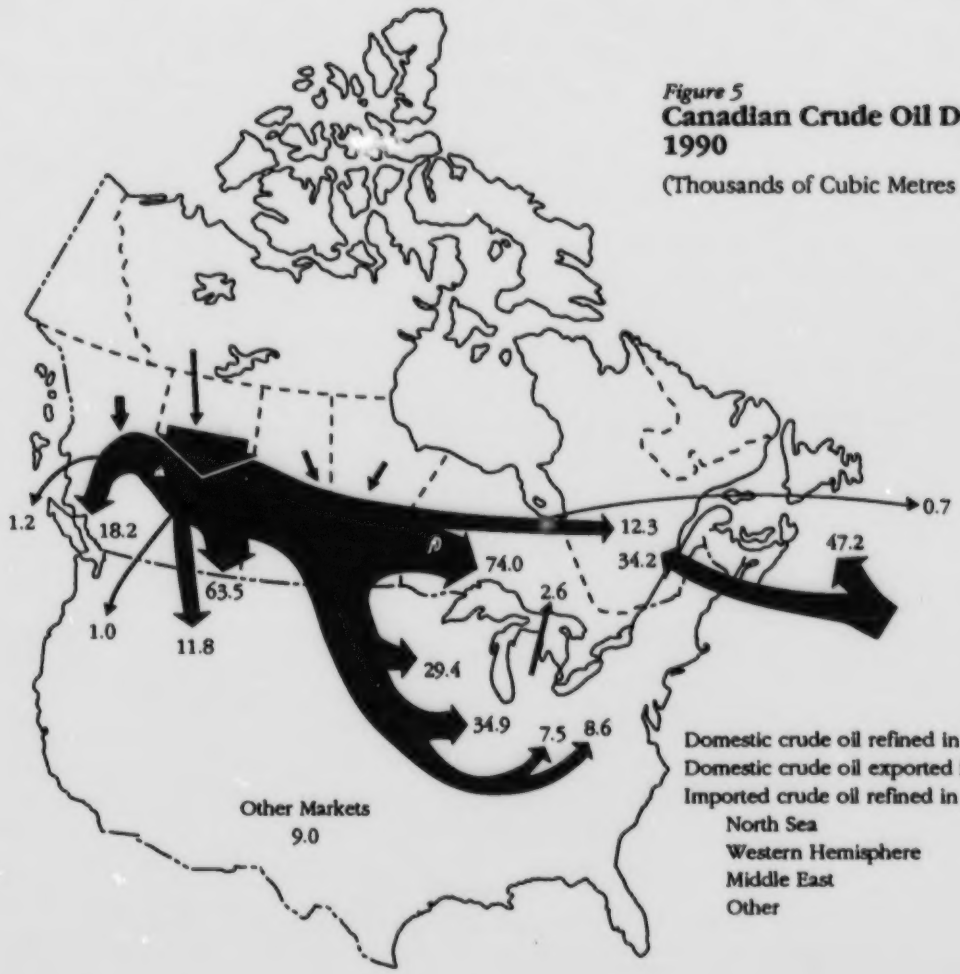
Main Petroleum Product Exports

In 1990, exports of main petroleum products and partially processed oil increased by about 13 percent to 34 000 cubic metres per day. This reflected higher exports primarily from the Atlantic region. In addition, the conflict in

Figure 5

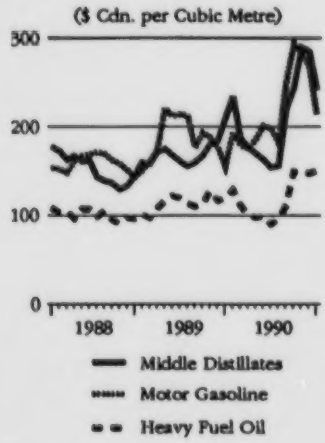
Canadian Crude Oil Disposition 1990

(Thousands of Cubic Metres per Day)



Domestic crude oil refined in Canada	168.7
Domestic crude oil exported from Canada	103.4
Imported crude oil refined in Canada	84.0
North Sea	53.9
Western Hemisphere	5.3
Middle East	12.8
Other	12.0

Figure 6
Main Petroleum Products
Average F.O.B. Export Price



the Middle East, which started in August 1990, resulted in higher export revenues. Figure 6 provides the average export price for the main petroleum products for the past three years. The increase in distillate export prices during December 1989 and January 1990 reflected record cold temperatures in eastern North America. The invasion of Kuwait by Iraq resulted in significant price increases, and these were maintained for the remainder of the year.

The United States continued to be Canada's largest buyer of petroleum products, receiving almost 96 percent of our total exports.

Exports of motor gasoline and middle distillates from Atlantic Canada increased in 1990, reflecting reduced refinery turnaround time. Export volumes by type of product and by region are shown in Table 2.

Table 2
Petroleum Product Exports, 1990
(Estimate in Thousands of Cubic Metres)

	Motor Gasoline	Middle Distillates	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total[a]
Atlantic	2 625	2 801	739	989	527	7 681
Quebec	139	400	–	326	–	865
Ontario	408	826	93	909	10	2 246
Prairies	279	327	89	100	–	795
British Columbia	402	356	84	3	30	875
Total	3 853	4 710	1 005	2 327	567	12 462
Average Export Price ($/m³)	218.70	210.00	(b)	119.10	(b)	–

(a) Excludes propane, butanes, lubricants, greases, and asphalt.
(b) Cannot be released for reasons of confidentiality.

Oil Pipeline Capacity

During 1990, **Interprovincial Pipe Line Company, a division of Interhome Energy Inc.,** operated at or near capacity on the Edmonton to Sarnia part of its system. Apportionment was necessary in the latter part of 1990 due to maintenance programs. However, because oil productive capacity was lower than in previous years, the overall effect of apportionment was not severe. Throughput on the Sarnia to Montreal section of the **Interprovincial** system continued to decline to 13 400 cubic metres per day in 1990 from 16 500 cubic metres per day in 1989.

Trans Mountain Pipe Line Company Ltd. generally had space available on its system, although operations were nearly at capacity towards the end of the year. **Trans Mountain** is continuing to assess the need for an offshore port in the State of Washington.

Natural Gas

Domestic Supply and Demand

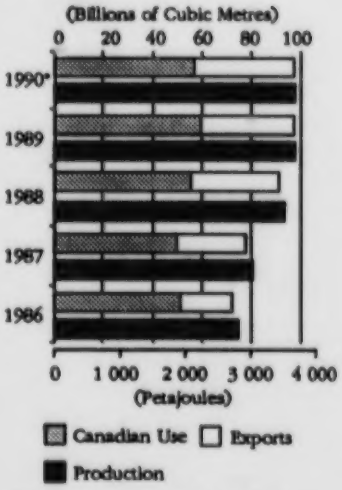
Marketable natural gas production in Canada is estimated to have been 98.1 billion cubic metres in 1990, virtually unchanged from the 1989 level.

Imports of natural gas in 1990 were 742.5 million cubic metres, representing a decrease of 31 percent from the 1989 level of approximately 1.1 billion cubic metres. The decrease in natural gas imports reflected increased purchases of Alberta spot gas in lieu of American spot gas for storage during the summer months. The Board issued 38 short-term import orders compared with 48 import orders issued in 1989. Most American gas entered Canada near Windsor, Ontario via connections between the **Union Gas Limited** and the **Panhandle Eastern Pipe Line Company's** pipeline system. Twenty percent of gas imported into Canada entered near Sarnia, Ontario via the pipeline of **St. Clair Pipelines Ltd.**

In 1990, domestic gas sales registered 54.3 billion cubic metres, down 4.6 percent from 1989. The drop was particularly significant in British Columbia. Quebec was the only province to show an increase in net gas sales.

The drop in residential and commercial gas consumption was due to higher average temperatures. Industrial gas use fell sharply in Alberta and British Columbia, where natural gas-based power generation decreased sharply.

Figure 7
Natural Gas
Supply and Disposition



Imports are too small to be shown
*Estimate
Reference: Energy Overview Appendix 3

Figure 8

Natural Gas Disposition 1990

(Billions of Cubic Metres)

Deliveries

Canadian Use	56.8
Exports	40.7
Imports	-0.7
Total Deliveries	96.9

Major Export Points

H	Huntingdon	4.5
K	Kingsgate	14.7
A	Aden	0.3
M	Monchy	9.8
E	Emerson	8.4
N	Niagara Falls	2.3
C	Cornwall	0.2
P	Philipsburg	0.2

Exports

Gas exports to the United States rose by about seven percent in 1990, from 37.9 billion cubic metres (about 1.43 billion gigajoules) to 40.7 billion cubic metres (about 1.52 billion gigajoules) or 1.44 trillion cubic feet.

Total gas export revenues also increased about 6.5 percent, from $Cdn 3 billion in 1989 to $Cdn 3.2 billion in 1990.

The average price received for natural gas exports remained stable at about $Cdn 2.11 per gigajoule.

California accounted for 35 percent of Canada's 1990 gas export sales, the central region 43 percent, the Pacific northwest 12 percent, the northeast nine percent, and the mountain region one percent.

The central region was responsible for most of the year-over-year increase in export volumes and most of the remainder went to the northeast. In 1990, the Canadian share of the American gas market remained greater than seven percent of consumption.

Access to American pipeline systems continued to improve in 1990, and by year-end, all major American pipelines were open-access carriers. This facilitated sales of Canadian gas exported under short-term orders, which increased to 14.5 billion cubic metres in 1990 from 13.9 billion cubic metres in 1989. Short-term sales accounted for about 36 percent of total natural gas exports in 1990, compared with 37 percent in 1989.

At year-end, the outlook for 1991 export sales of natural gas was positive, particularly for use in the generation of electricity and specifically for the cogeneration segment of the market. Of the 33 long-term gas export applications considered by the Board in 1990, 16 applications were for exports destined for cogeneration projects.

Natural Gas Pipeline Capacity

During 1990, there was little spare capacity on any of the major gas pipelines in Canada. The Board approved a part of a major pipeline expansion by **TransCanada PipeLines Limited** and a gas plant expansion by **Westcoast Energy Inc.** (These are more fully discussed under *Hearings, Inquiries and Reviews* at pages 35 and 37.) **TransCanada** is also requesting further approvals for additional facilities to be constructed in 1991/1992. The Board expects to render a decision on that application in the spring of 1991.

Figure 9
Natural Gas Average Export Prices

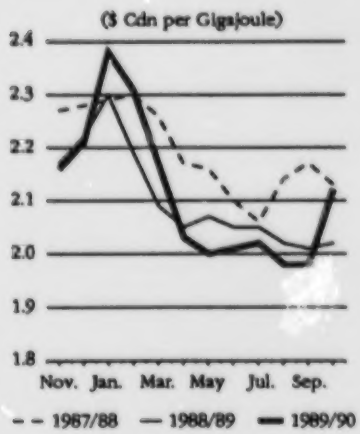
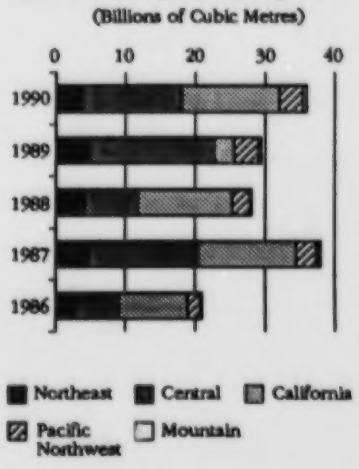


Figure 10
Natural Gas Exports by Region



Natural Gas Liquids

The total production of natural gas liquids in 1990 was 24.4 million cubic metres. Ethane production was 10.3 million cubic metres, propane production was 9.3 million cubic metres, and butanes production was 4.9 million cubic metres. These production volumes are essentially unchanged from 1989.

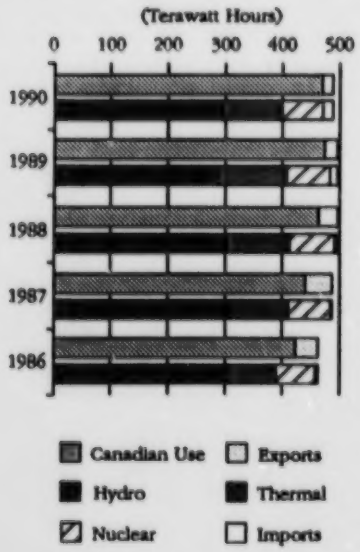
Total exports of natural gas liquids during 1990 were 6.7 million cubic metres. Ethane exports were 0.8 million cubic metres, propane exports were 3.5 million cubic metres and butanes exports were 2.7 million cubic metres. During 1990, ethane exports were unchanged from 1989, propane exports fell by five percent, and butanes exports declined by twelve percent.

Electricity

Generating Capacity

In 1990, Canada's total net generating capacity was approximately 98 500 megawatts, an increase of about 2 000 megawatts, or two percent over 1989.

Figure 11
Electricity
Supply and Disposition



Reference: Energy Overview Appendix 4

Generation and Consumption

Total generation of electricity in 1990 was an estimated 470 000 gigawatt hours, down three percent from 1989. Approximately 63 percent of Canada's total generation was supplied from hydroelectric generation, 22 percent from conventional thermal generation and 15 percent from nuclear generation. Total Canadian consumption in 1990 is estimated to have been 470 000 gigawatt hours, which is virtually unchanged from 1989. Figure 11 shows the supply and disposition of electricity for the past five years.

Export Sales

The downturn in electricity export sales which began in 1989 continued throughout most of 1990. Total sales were the lowest since 1976 and amounted to 16 494 gigawatt hours, a decrease of 11 percent from 1989. No new firm export agreements became effective during the year; nevertheless, firm sales showed a modest four percent increase over last year's figure while interruptible sales were down 23 percent from 1989. The total export revenue of $547 million represents a decrease of 17 percent from last year; while the average price was down some seven percent from 1989.

Electricity export sales in 1990 went through two distinct phases. During the first six months, exporting utilities had very little surplus energy available for export due to low water conditions in some provinces and restrictions on fossil-fueled generation in Ontario. These restrictions were required in order for Ontario Hydro not to exceed provincial limits on acid gas emissions. During the second half of the year, the situation turned around as export volumes increased due to improved water conditions across Canada. However, during this period, rather than competing in the export market, some utilities replenished their water reserves, which over the last few years had become depleted due to below average precipitation. Over the entire year, Canada was a net exporter of electricity.

Hydro still remains the leading source of production for all exports. Its share increased to 63 percent in 1990 from 45 percent in 1989. Other fuels used to produce electricity for export were: nuclear at 13 percent, Canadian coal at eight percent, imported oil at six percent, natural gas at five percent, imported coal at two percent. The remaining three percent of the exports was electricity purchased from one American utility and resold to another American utility.

Electricity Appendices 6 and 7 show the origin and destination of all exports, by exporting province and importing region or state. As was the case in 1988 and 1989, the New England region was the leading import area, accounting for about 37 percent of all Canadian electricity exports.

Imports

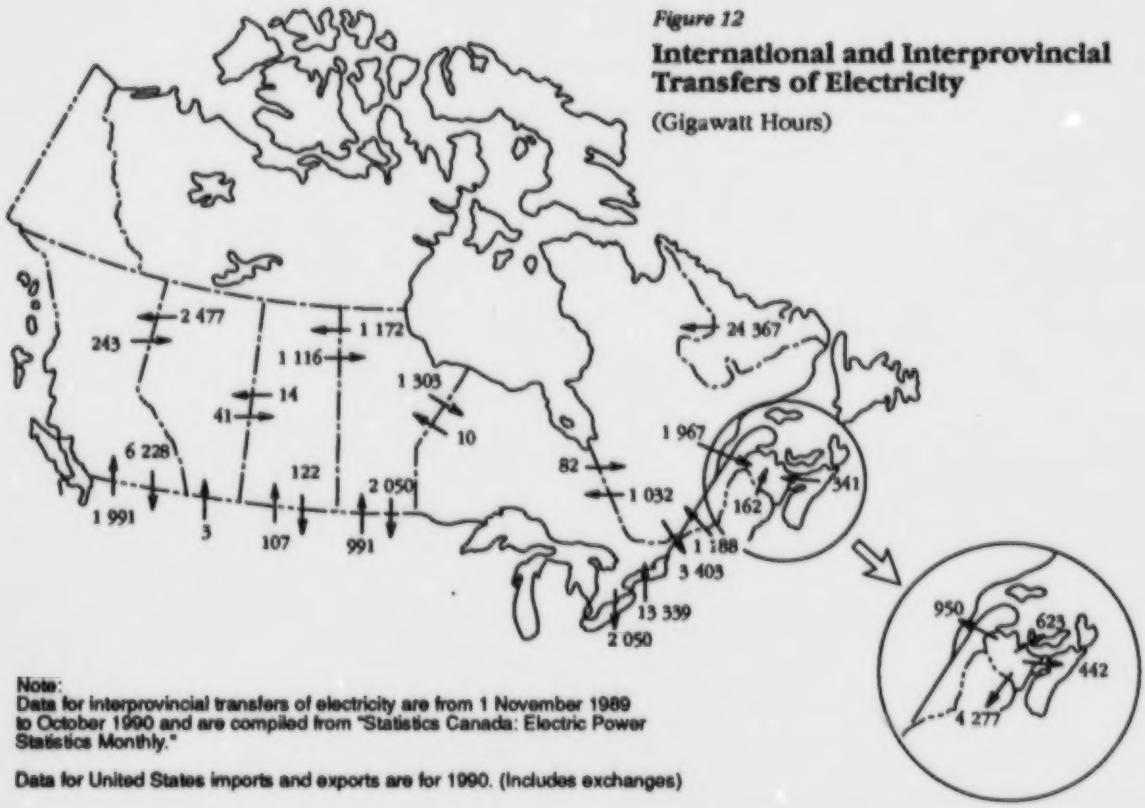
During 1989 and 1990, imports played a larger role in electricity trade. In 1990, purchases from the United States reached a record and amounted to 15 543 gigawatt hours with an associated cost of $556 million. **Ontario Hydro** was the major importer, accounting for 73 percent of all purchases, followed by **Hydro-Québec** which imported 18 percent of the total. **Ontario Hydro's** purchases offset shortfalls in generation due to difficulties, including commissioning delays, experienced at some of its nuclear reactors and curtailment of some of its coal-fired stations in order to comply with provincial regulations on acid gas emissions. **Hydro-Québec's** purchases were used to offset the low water conditions which continued to prevail up to the first part of the year. Figure 12 shows exports and imports in 1990 as well as interprovincial transfers for the 12 months ending 31 October 1990.

Taking into account export sales in 1990 of 16 494 gigawatt hours and import purchases of 15 543 gigawatt hours, exports exceeded imports for the year by only 951 gigawatt hours. However, export revenues were about $9 million less than import costs.

Figure 12

International and Interprovincial Transfers of Electricity

(Gigawatt Hours)

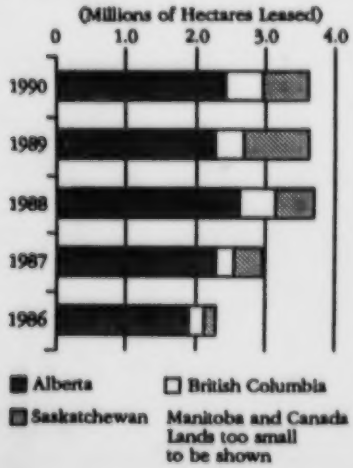


Note:
Data for interprovincial transfers of electricity are from 1 November 1989 to October 1990 and are compiled from "Statistics Canada: Electric Power Statistics Monthly."

Data for United States imports and exports are for 1990. (Includes exchanges)

Figure 13

Land Sales



Oil and Gas Activity and Reserves

Exploration and Development Activity

Upstream activity by the Canadian oil and gas industry increased marginally in 1990 compared with the level of activity in 1989. However, continuing uncertainty about future oil and gas prices, the impact of mergers and takeovers, the ongoing rationalization of producing interests and the emphasis on cost reductions all led to an activity level lower than the average observed in the previous decade.

During 1990, the oil and gas industry spent $599.2 million on land sales, compared with $485.6 million in 1989. The provincial and federal governments leased the mineral rights to 3.6 million hectares in 1990, the same as in 1989.

However, the average price per hectare in 1990 was $166, compared with $134 in 1989, resulting in the total amount spent on land sales throughout Canada in 1990 being 23 percent higher than in 1989. Figures 13 and 14 summarize land sale activity for the past five years.

The number of wells drilled increased three percent to about 6 000 wells in 1990, compared with 5 804 wells in 1989 (Figure 15). In 1990, the trend which began in 1989 toward drilling more gas wells continued. This can be attributed to the stabilization of gas prices and the expectation of improved market opportunities for natural gas. Through the years 1986 to 1988, successful oil wells outnumbered successful gas wells by a ratio of about two to one. During the past two years the trend has reversed, with the number of successful gas wells being about twenty-five percent higher than the number of successful oil wells. Higher oil prices during the latter half of 1990 did not appear to have a significant impact on oil-directed drilling activity.

Drilling rig activity in 1990, on average, exhibited an eight-percent increase over the level of activity observed in 1989 (Figure 16). The first two months of 1990 saw rig activity increase by 23 percent, compared with the same time period in 1989, while the remaining 10 months of 1990 exhibited a level comparable with the corresponding time period in 1989. Within any particular year, rig activity tends to be somewhat erratic, with the variability being influenced in part by seasonal access to drilling locations.

Geophysical activity in 1990 mirrored the 1989 level, both in terms of the average number of active crews per month and the number of kilometres of seismic shot per month. The average number of active crews per month for each of the last three years is illustrated in Figure 17. Geophysical activity traditionally increases during the winter months due to improved accessibility in some areas of the provinces.

Exploration and development expenditures in Canada during 1990 were about $6.4 billion (Figure 18). This represents an increase of ten percent from the $5.8 billion spent in 1989 and is comparable on a nominal basis with the average annual expenditures over the past five years.

Oil and Gas Reserves

The Board's estimate of remaining established reserves of conventional crude oil, as of 31 December 1989, is 704.6 million cubic metres.

Figure 14
Land Sales

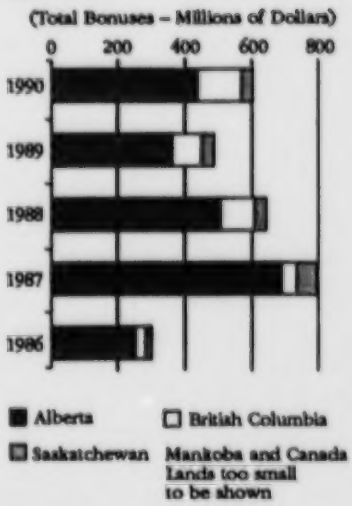
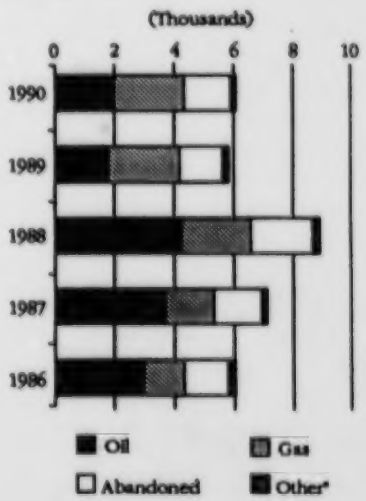


Figure 15
Canadian Wells Drilled



* Includes suspended, service and miscellaneous wells

Figure 16
Canadian Rig Activity

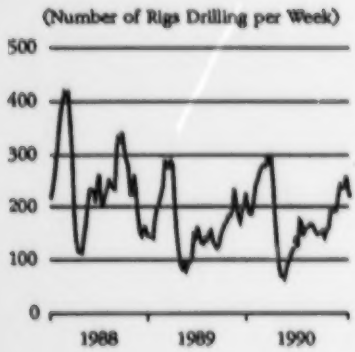


Figure 17
Canadian Geophysical Activity

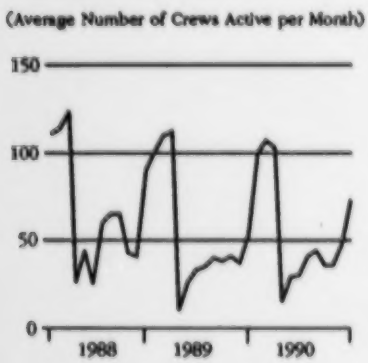
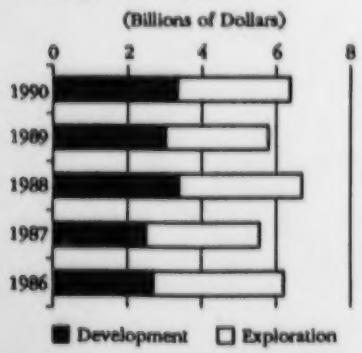


Figure 18
Exploration and Development Expenditures



The Board's estimate of initial (i.e., before production) established reserves of conventional crude oil increased 108.8 million cubic metres from the estimate for year-end 1988, through new discoveries, extensions to existing pools, upward revisions to estimates of reserves in existing pools and the inclusion of estimates of reserves for certain fields in the frontier regions which were previously categorized as discovered resources.

The Board's estimate of remaining established reserves of conventional crude oil also increased compared with the estimate at year-end 1988, by 38.4 million cubic metres, or six percent. Figure 19 illustrates the trend of conventional crude oil reserves additions relative to production over the past five years. Since 1985 annual reserves additions from conventional producing areas have not replaced production and have been progressively declining. However, at year-end 1989 the Board is recognizing established reserves for the Hibernia, Cohasset and Panuke and Bent Horn fields, and, as a result, total conventional crude oil reserves additions exceeded production in 1989. The reserves estimates for these four fields were derived from data supplied by the Canada Oil and Gas Lands Administration (COGLA), the respective Offshore Petroleum Boards and operator submissions. The Board had previously reported estimates of recoverable volumes for the Hibernia, Cohasset and Panuke and Bent Horn fields as discovered resources. The decision to recognize discovered resources, particularly in the frontier regions, as reserves is based on judgment regarding technical matters, the economic viability of the resource under anticipated economic conditions and the status of development plans for the particular fields under consideration. In the Board's view, the technical and economic viability of the Hibernia and Cohasset and Panuke fields has been demonstrated and development planning is sufficiently well advanced that it is appropriate to recognize established reserves for these fields at this time. With regard to Bent Horn, modest reserves have been recognized on the basis that there is expected to be commercial production from this field on an ongoing basis. The Board currently does not include other oil discoveries in the frontier regions in its estimates of established reserves due to uncertainty at this time as to their commercial viability and development timing.

The estimates of the initial and remaining established reserves for crude bitumen contained in Table 3 are for developed projects only, and are based on estimates contained in the Alberta Energy Resources Conservation Board's annual reserves report.

Table 3
Estimated Established Reserves of Crude Oil
at 31 December 1989
(Millions of Cubic Metres)

Conventional Crude Oil	Initial	Remaining
British Columbia	89.5	18.7
Alberta	2 154.2	461.6
Saskatchewan	478.5	108.2
Manitoba	35.2	8.1
Ontario	11.0	1.1
Northwest Territories and Yukon [a]		
Mackenzie Delta and Beaufort Sea	0.0	0.0
Arctic Islands and Eastern Arctic Offshore	1.0	0.8
Mainland Territories	35.2	23.1
Nova Scotia [b]	3.0	3.0
Newfoundland [c]	80.0	80.0
Total Conventional Crude Oil	**2 887.6**	**704.6**
Crude Bitumen [d]		
Surface-mineable	644.0	482.0
In Situ	97.9	60.2
Total Crude Bitumen	**741.9**	**542.2**
Total (Conventional Oil and Bitumen)	**3 629.5**	**1 246.8**

Note: The numbers on this table have been rounded.

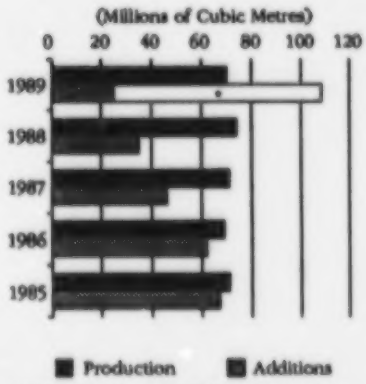
(a) For purpose of this table, the Northwest Territories and Yukon Territory are divided into three geographic regions as defined and administered by COGLA. The reserves for the Arctic Islands and Eastern Arctic Offshore region are composed totally of the Bent Horn field. The reserves for the Mainland Territories region are composed totally of the Norman Wells field.

(b) The reserves for Nova Scotia are composed totally of the Cohasset and Panuke fields.

(c) The reserves for Newfoundland are composed totally of the Hibernia field.

(d) Source: Alberta Energy Resources Conservation Board, Report ST90-18 (based on developed projects only).

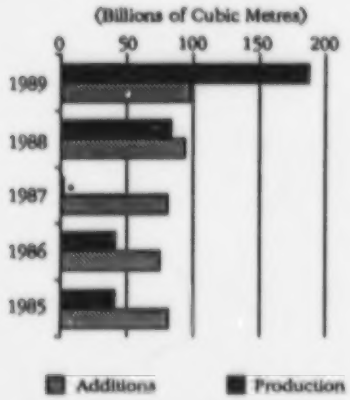
Figure 19
Conventional Crude Oil
Reserves Additions and Production



*Additions in 1989 attributable to the recognition of established reserves for: Hibernia (80.0 x 10e6m3), Cohasset & Panuke (3.0 x 10e6m3) and Bent Horn (1.0 x 10e6m3)

During 1989, the Board's estimate of initial established reserves of marketable natural gas increased by 193 billion cubic metres, or five percent, compared with the estimate at year-end 1988. The majority of this increase, 167 billion cubic metres, occurred in Alberta. As shown in Figure 20, this increase is

Figure 20
Marketable Natural Gas
Reserves Additions and Production*



*Starting in 1989, the data includes reserve additions and revisions for both the conventional producing areas and the frontier regions; however, the frontier regions contributed zero reserve additions in 1989. Data for 1985 to 1988 includes only the conventional producing areas.

significantly higher than in the recent past and is influenced by several factors. The downward adjustment in reserves for small pools, which has had the effect of reducing reserves additions in recent years, is essentially complete and is not significant in regard to the 1989 estimates of reserves. The recent increase in gas-directed drilling activity has resulted in both discoveries of a large number of new, relatively small pools and extensions to existing pools which are reflected in the 1989 estimates. Finally, the substantial number of natural gas export applications recently considered by the Board has necessitated review of estimates of reserves for both new and existing pools and these revised estimates have been incorporated in the Board's estimate of established reserves. The combined effect of the above factors has been a substantial increase in the estimate of initial established reserves at year-end 1989.

The Board's estimate of remaining established reserves of marketable natural gas, as of 31 December 1989, is 2 234 billion cubic metres. This estimate is 86 billion cubic metres higher than the estimate for year-end 1988 as reserve additions more than offset production during the year. The province of Alberta accounted for the majority of the increase.

Table 4
Estimated Established Reserves of Marketable Natural Gas
At 31 December 1989
(Billions of Cubic Metres)

	Initial	Remaining
British Columbia	422	210
Alberta	3 176	1 627
Saskatchewan	121	70
Ontario	41	10
Northwest Territories and Yukon (a)		
Mackenzie Delta and Beaufort Sea	309	309
Arctic Islands and Eastern Arctic Offshore	0	0
Mainland Territories	15	8
Total	**4 084**	**2 234**
(Total in exajoules)	**157.2**	**85.8**

Note: The numbers on this table have been rounded.
(a) For the purpose of this table, the Northwest Territories and Yukon Territory are divided into three geographic regions as defined and administered by COGLA.

The Board also recognizes COGLA's estimates for discovered resources, as reported in its 1989 Annual Report and provided in Table 5. A portion of the discovered resources reported by COGLA has been recognized as established reserves by the Board, as noted in Tables 3 and 4. The estimates of established reserves contained in Tables 3 and 4 are therefore not additive to the estimates of discovered resources contained in Table 5. The remainder of the discovered resources could be classified as established reserves in the future as the development timing and economics become more certain.

Table 5
Discovered Resources in the Frontier Areas [a]
At 31 December 1989

	Crude Oil (Millions of Cubic Metres)	**Natural Gas** (Billions of Cubic Metres)
Mackenzie Delta and Beaufort Sea	256	323
Arctic Islands and Eastern Arctic Offshore	66	416
Mainland Territories	38	22
Nova Scotia Offshore	24	165
Newfoundland Offshore	235	149
Total Frontier Areas [b]	**619**	**1075**

Note: The numbers on this table have been rounded.
Source: COGLA's 1989 Annual Report.

(a) Discovered resources are the best current estimates of the quantity of crude oil and natural gas potentially recoverable under current technology and not constrained by economic viability, specifically proved by drilling, testing or production, plus that judgment portion of the contiguous recoverable resource that is interpreted to exist, from geological, geophysical or similar information, with reasonable certainty.

(b) The Board recognizes a portion of COGLA's discovered resources in its estimates of established reserves, as noted in Tables 3 and 4. The estimates of established reserves contained in Tables 3 and 4 are therefore not additive to the estimates of discovered resources contained in Table 5.

THE YEAR AT A GLANCE

Highlights of major activities during 1990

Hearings

- conducted 14 oral public hearings for a total of 169 hearings days
- conducted 10 public hearings by way of written submission

Natural Gas

- granted 18 natural gas export licences for a total of some 55.3 billion cubic metres. The licences were issued to:

  CanStates Gas Marketing/Transco Energy Marketing Company
  Direct Energy Marketing Limited
  Esso Resources Canada Limited/ Transco Energy Marketing Company
  FSC Resources Limited
  Husky Oil Operations Ltd.
  Indeck Gas Supply Corporation
  L & J Energy Systems, Inc.
  Mobil Oil Canada Ltd. (3 licences)
  North Canadian Oils Limited (2 licences)
  Ramarro Resources Inc.
  Shell Canada Limited
  Vector Energy Inc.
  Western Gas Marketing Limited, as agent for TransCanada PipeLines Limited
  Westcoast Energy Marketing Ltd.
  Western Gas Marketing Limited

- decided that the Board will no longer use benefit-cost analysis in considering applications for export licences but will continue to examine export contracts for commercial substance and if they are likely to be durable over their term
- amended 12 gas export licences
- issued 151 short-term orders for either export or import of natural gas
- issued 93 orders for the export of propane and butanes

Oil

- issued 115 orders for the export of crude oil and petroleum products
- published a report entitled *Exports of Petroleum Products in 1989*
- published a report entitled *Exports of Crude Oil in 1989*

Electricity

- issued seven licences to **Hydro-Québec** to export 450 megawatts of firm power to **Vermont Joint Owners** and 1 000 megawatts of firm power to the **New York Power Authority**
- amended 11 export licences and one international power line certificate
- issued 13 export permits and two export orders
- commenced a study on interprovincial electricity trade

Energy Studies

- Board staff commenced updating the projections of energy supply and demand which were published in the September 1988 report entitled *Canadian Energy Supply and Demand, 1987-2005*, and issued for public comment preliminary views on assumptions and preliminary projections

Pipelines

- approved a $546 million expansion of the **TransCanada PipeLines Limited** system, comprising 391.4 kilometres of looping, the 4.5-kilometre Iroquois extension and the relocation of two compressors
- approved a $108 million expansion of **Westcoast Energy Inc.'s** McMahon Plant in northeastern British Columbia
- granted a certificate to **Westcoast Energy Inc.** to construct the 44.9-kilometre Hossitl pipeline at an estimated cost of $10.9 million
- amended the requirements contained in an earlier decision regarding welds on liquid-filled pipelines owned by companies under the Board's jurisdiction

Environment

- in accordance with the *Environmental Assessment and Review Process Guidelines Order*, conducted environmental screenings of 54 natural gas and electricity export applications and at year-end was considering the environmental impact of four additional export applications

- conducted over 75 environmental screenings of pipeline facilities, ranging from facility modifications to major pipeline looping and transmission facilities

- published a guide entitled *Excavation and Construction Near Pipelines* to assist those who wish to excavate or construct near a pipeline that is regulated by the Board

Toll Regulation

- established new tolls that **TransCanada PipeLines Limited** may charge for the transportation of natural gas effective 1 January 1990 at 1.4 percent higher than the average 1989 tolls

- approved a 7.2-percent increase in the tolls that **Interprovincial Pipe Line Company, a division of Interhome Energy Inc.** may charge for transporting crude oil, natural gas liquids and petroleum products beginning 1 January 1991

- approved a 9.8-percent increase in the tolls that **Trans-Northern Pipelines Inc.** may charge for the transportation of refined petroleum products beginning 1 December 1990

- approved a 6.4-percent average increase in the tolls that **Trans Mountain Pipe Line Company Ltd.** may charge for the transportation of oil and petroleum products beginning 1 January 1991

- released a decision on a study filed, as directed by the Board, by **Interprovincial Pipe Line Company** addressing a number of toll design issues, including the appropriate level of surcharges for medium and heavy crude oils

- decided on the toll methodology to be applied to **TransCanada PipeLines Limited's** 1991/1992 expansion program and how the Board will determine economic feasibility of the proposed expansion

- approved **TransCanada Pipe - Lines Limited's** queuing procedures

- decided on the tests to be used to determine whether a surcharge should be levied on new raw gas transmission facilities to be built by **Westcoast Energy Inc.**

- issued a decision requiring **Westcoast Energy Inc.** to amend its existing queuing procedures

Legal Actions

- **Midland Cogeneration Venture Limited** applied to the Federal Court of Appeal for leave to appeal the Board's June 1989 decision to condition licences issued to five companies proposing to export to **Midland.** Subsequently, after a review of certain of its procedures, the Board amended the licences to provide the exporters with greater flexibility. On 11 May, **Midland** filed a Notice of Discontinuance with the Court.

- **Western Gas Marketing Limited, as agent for TransCanada PipeLines Limited, Indeck Gas Supply Corporation Limited, Shell Canada Limited and Niagara Mohawk Power Corporation** launched various actions in the Federal Court of Appeal relating to the Board's decision in GH-1-89 to deny some export applications. As a result of a change in its procedures, the Board held a hearing in April to review its denial of the applications and decided at that time to approve the export applications.

- On 21 December 1989, the **Industrial Gas Users Association** applied to the Federal Court (Trial

Division) for orders relating to the inclusion of alternate toll methodology in the Board's hearing on **TransCanada PipeLines Limited's** expansion proposal (GH-5-89). The Court ordered, on 12 February, that the Board include toll methodology as an issue in the hearing.

- On 28 May, the **Industrial Gas Users Association** again applied to the Federal Court arguing that the Board had interpreted the Court's earlier decision too narrowly and requested a direction that the issue of toll methodology be considered not only with respect to traffic on the applied-for facilities in GH-5-89 but with respect to traffic on previously certificated facilities as well. The Court denied the **Industrial Gas Users Association's** request.

- In October and December, **Hydro-Québec, le Procureur général du Québec and the General Council of the Crees (of Quebec)** filed with the Federal Court of Appeal applications for leave to appeal certain aspects of the Board's decision to issue licences to Hydro-Québec for exports of firm electricity to the **Vermont Joint Owners and the New York Power Authority**.

Regulatory Process

- Bill C-23, *An Act to Amend the National Energy Board Act and to repeal certain enactments in consequence thereof*, came into force on 1 June. Bill C-23 includes the incorporation of the new electricity export policy, housekeeping amendments, a reduction in the number of permanent Board Members from 11 to 9, and the provision for the Board to recover the cost of its operation from the companies it regulates

- the *National Energy Board Part VI Regulations (the Part VI Regulations)* are being amended to reflect the new *Canadian Electricity Policy* and the Market-Based Procedure for considering gas export and import licence applications

- amended the *Part VI Regulations* to allow longer terms for orders to import, export for re-import and import for re-export of natural gas

- issued a Memorandum of Guidance regarding the early public notification of proposed applications for pipeline construction or expansion, the export of electricity, or the export of high-sulphur crude oil from the west coast of Canada

- issued a Memorandum of Guidance outlining the steps to be followed to implement the new *Canadian Electricity Policy* together with draft regulations respecting electricity

- updated the Memorandum of Guidance on the Regulation of Group 2 Companies

Organization

- Céline Bélanger and Roy Illing were appointed Board Members effective 1 January 1990

- William G. Stewart was re-appointed as a Board Member for a two-year term effective 24 March 1990

HIGHLIGHTS OF THE PIPELINE COMPANIES UNDER NATIONAL ENERGY BOARD JURISDICTION

	1990 Rate Base[a] ($000,000)	1990 Revenue Requirement ($000,000)	Length (Including Loops) (km)	1990 Actual Throughput ($10^6 m^3$)
Group 1 Gas[b]				
Alberta Natural Gas Company Ltd	20	28	175	13 875
Foothills Pipe Lines Ltd.	574	164	850	12 139
Trans Québec & Maritimes Pipeline Inc.	357	69	341	2 742
TransCanada PipeLines Limited	3 012	975	11 369	41 504
Westcoast Energy Inc.	830	291	4 554	11 473
Group 1 Oil				**($10^3 m^3$)**
Cochin Pipe Lines Ltd.	45	31	1 125	4 238
Interprovincial Pipe Line Company, a division of Interhome Energy Inc.	639	305	6 495	79 134
Interprovincial Pipe Line (NW) Ltd.	290	73	868	1 903
Trans Mountain Pipe Line Company Ltd.	154	77	1 328	9 685
Trans-Northern Pipelines Inc.	38	26	847	9 546
Group 2 Gas and Oil				
Total	N/A	N/A	3 666	N/A

(a) Net plant or equivalent, including working capital.
(b) Group 1 consists of the ten major pipelines, for which financial data are based on preliminary estimates obtained from the companies. Group 2 comprises the remaining 42 smaller pipelines which are regulated on a complaint basis only and for which financial data are not available.

Hearings, Inquiries and Reviews

During 1990, the Board conducted 14 oral hearings in locations such as Vancouver, Fort St. John, Calgary, Ottawa, Kingston, Gananoque and Montreal, for a total of 169 hearing days. The Board also conducted 10 public hearings by way of written submissions.

This section summarizes the major matters dealt with in 1990 following public hearings, inquiries and reviews for which decisions have been issued or are still pending.

Natural Gas Exports

Esso Resources Canada Ltd.; Gulf Canada Resources Ltd.; Shell Canada Limited - Licences - GH-10-88

The **Council of Canadians** applied on 15 November 1989 for a re-hearing of the applications by **Esso, Gulf** and **Shell** to export natural gas from the Mackenzie Delta that the Board had approved in August 1989. **The Dene/Metis Negotiations Secretariat** also filed an application dated 8 January 1990 for a review of the same decision.

The Board sought comments from interested parties on both applications and, following a review of the comments received, denied both applications. In the Board's view, all the points set out in the applications had been raised during the public hearing and had been appropriately dealt with in the Board's Reasons for Decision.

On 8 February, the Minister of Energy, Mines and Resources requested clarification on how the Board complied or would comply with the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order")* in arriving at its decision to issue the licences to **Esso, Gulf** and **Shell**. In compliance with the *EARP Guidelines Order*, the Board decided to conduct an environmental screening of the applications and held a hearing by way of written submission. On 15 February the Board issued Hearing Order GHW-2-90, inviting interested parties to provide their comments.

Various submissions were received and are currently under review. The Board expects to issue its decision in this matter early in 1991.

Various Applications for Licences - GH-6-89

The Board considered six applications to export natural gas from the following companies at a public hearing held in Calgary from 19 to 21 March:

- **CanStates Gas Marketing and Transco Energy Marketing Company**, joint applicants, dated 31 August 1989
- **Esso Resources Canada Limited and Transco Energy Marketing Company**, joint applicants, dated 27 November 1989
- **FSC Resources Limited**, dated 10 February 1989
- **Ramarro Resources Inc.** dated 28 July 1989
- **Vector Energy Inc.**, dated 9 December 1989
- **Western Gas Marketing Limited**, dated 25 September 1989.

The Board issued six licences, which received Governor in Council approval, allowing the export of some 31.4 billion cubic metres of natural gas over the next 12 to 15 years.

CanStates and TEMCO were issued a joint licence authorizing them to export up to 5 594 million cubic metres of natural gas over a 12-year period ending 31 October 2002. The natural gas will be exported at Niagara Falls, Ontario and will fuel a cogeneration facility in Hopewell, Virginia.

Esso received a licence jointly with **TEMCO**, authorizing them to export up to 9 308 million cubic metres of natural gas over the 12-year period ending 31 October 2002. The gas will be sold to **TEMCO** at Niagara Falls, which in turn will resell the gas to three local distribution companies in the United States.

FSC Resources was issued a licence authorizing the export of up to 8 377 million cubic metres of natural gas over the 15-year period ending 31 October 2005. The natural gas will be exported at Napierville, Quebec and will be used to fuel three cogeneration facilities to be constructed near Plattsburgh, New York.

Ramarro Resources received a licence authorizing the export of 926 million cubic metres of natural gas over the 15-year period ending 31 October 2005. The natural gas will be exported at Niagara Falls, Ontario to **Energy Marketing Exchange Inc.** of Edison, New Jersey for use in a cogeneration facility located at Milford, New Jersey.

Vector Energy was issued a licence to export up to 5 026 million cubic metres of natural gas over the 15-year period ending 31 October 2005. The gas will be exported at Niagara Falls, Ontario to **Altresco Inc.** of Denver, Colorado for use in a proposed cogeneration facility to be located in Pittsfield, Massachusetts.

Western Gas Marketing received a licence authorizing the export of up to 2 327 million cubic metres of natural gas over the 15-year period ending 31 October 2005. The gas will be sold at Emerson, Manitoba to **Southeastern Michigan Gas Company**.

The Board conducted an environmental screening of the proposed exports and found that the environmental effects and directly related social effects would be insignificant or mitigable with known technology, except for the new transmission facilities required on the system of **TransCanada PipeLines Limited** to transport the exports of **CanStates/TEMCO**, where the effects were not fully known as the matter was being addressed in proceedings being held at the time under Hearing Order GH-5-89.

Information on Gas Supply Required to be Provided by TransCanada PipeLines Limited in Support of its 1991/92 and 1992/93 Facilities Application - GHW-3-89

In March, the Board released its Reasons for Decision on a hearing held by way of written submissions to obtain the views of interested parties regarding the information on gas supply required to be provided in support of **TransCanada's** 1991/92 and 1992/93 facilities application. The decision itself had been issued in November 1989.

Review of Aspects of the Market-Based Procedure - GHW-4-89

On 18 December 1989, the Board decided on its own motion to review the role that benefit-cost analysis should play in the Market-Based Procedure employed by the Board in considering applications to export natural gas. The Board took that decision in light of concerns expressed by interested parties in respect of recent hearings to consider export applications and at a November 1989 workshop held by Board staff to discuss benefit-cost analysis.

The Board also sought parties' views on the extent to which it should, as part of the Market-Based Procedure, examine the provisions of export contracts to determine whether those contracts allow flexibility in order to reflect changing market conditions over time.

The Board issued its Reasons for Decision in March. The Board decided it would no longer use benefit-cost analysis in considering gas export licence applications and decided that, with respect to contract flexibility, it would operate on the presumption that, where contracts are freely negotiated at arm's length, they would be in the public as well as the private interest.

Review of Export Applications Previously Denied - GH-1-90

The Board held a public hearing in Calgary on 23, 24 and 25 April to consider applications for review by four applicants that had natural gas export applications denied in a previous proceeding. The review applications had been submitted as a result of the Board's decision released on 15 March to no longer use benefit-cost analysis in considering applications for export licences. (Refer to *Review of Aspects of the Market-Based Procedure - GHW-4-89* above and *Legal Actions* on page 61).

The applications were from **Direct Energy Marketing Limited** for exports to West Georgia, Vermont; **Western Gas Marketing Limited**, as agent for **TransCanada PipeLines Limited** for exports to **Niagara Mohawk Power Corporation** in New York State; **Indeck Gas Supply Corporation** for exports to two cogeneration plants to be built in Oswego and Tonawanda, New York; and **Shell Canada Limited** for exports to **Cogen Energy Technology, Inc.** in Castleton-on-Hudson, New York.

The Board conducted an environmental screening of the applicants' proposals by means of written submission. It found that, with one exception, any potential adverse environmental effects and directly related social effects of the exports would be insignificant or mitigable with known technology. The exception was the proposal for a new pipeline to be constructed by **TransCanada PipeLines Limited** to transport the exports from **Western Gas Marketing Limited** to **Niagara Mohawk Power Corporation**. In this case, the Board found that the effects were not fully known and the matter would be addressed in proceedings to be held under Hearing Order GH-4-90.

The Board approved the four applications and issued its Reasons for Decision on 27 June. The Governor in Council also approved the four licences.

North Canadian Oils Limited - Licences - GH-2-90

On 19 June, the Board held a public hearing in Ottawa to consider an application by **North Canadian** for two licences authorizing the export of natural gas to **Consumers Power Company** for system supply and **Midland Cogeneration Venture Limited Partnership** for use in a cogeneration plant located at Midland, Michigan.

The Board approved the application to export 283 300 cubic metres of gas per day to each of **Consumers Power** and **Midland** for a ten-year period ending 31 October 2000.

The Board conducted an environmental screening of the application by means of written submissions and found that any potential adverse environmental effects and directly related social effects of the exports would be insignificant or mitigable with known technology.

The Governor in Council approved the two licences.

Husky Oil Operations Ltd.; Mobil Oil Canada, Ltd.; L&J Energy Systems, Inc. - Licences - GH-3-90

The Board held a two-day hearing in Ottawa commencing on 31 July on applications by **Husky**, **Mobil** and **L&J Energy** to export natural gas. The Board approved the applications and issued its Reasons for Decision in November.

Husky was issued a 15-year licence to export 3 154 million cubic metres of natural gas. The gas will be exported near Cornwall, Ontario for use in a proposed cogeneration facility near Massena, New York. **Mobil** received three licences to export a total of 4 438 million cubic metres of natural gas for periods of up to 13 years. The gas will be exported near Huntingdon, British Columbia and will be used as system supply by three local distribution companies serving Washington and Idaho. **L&J Energy** was issued a licence to export 1 456 million cubic metres of natural gas for a period of 12 years. The gas will be exported near Iroquois, Ontario to supply **L&J Energy's** proposed cogeneration facility to be located in Lowville, New York.

The Board conducted an environmental screening of the applications by means of written submissions and found that any potential adverse environmental effects of the exports would be insignificant or mitigable with known technology.

The Governor in Council approved the five licences.

North Canadian Oils Ltd.; Poco Petroleums Ltd. - Licences - GH-7-90

A public hearing was held on 23 and 24 October in Vancouver, British Columbia to consider an application by **North Canadian** and two applications by **Poco** for licences to export natural gas.

North Canadian planned to export up to 1 084 million cubic metres of natural gas at Emerson, Manitoba over a 15-year period beginning 1 January 1991 to supply a cogeneration plant in Ada, Michigan.

Poco's first application requested a licence to export 1 138 million cubic metres of natural gas from Huntingdon, British Columbia beginning 1 September 1990 and ending 31 October 1999. The gas would be sold to **Washington Natural Gas Company** for system supply. The second application requested a licence to export up to 1 583 million cubic metres of natural gas from Huntingdon, British Columbia over a nine-year period commencing 1 November 1990. The gas would be used as system supply for customers in the Pacific northwest of the United States.

The Board conducted an environmental screening of the applications by means of written submissions. The Board expects to issue its decisions on the environmental screenings and the export proposals in the spring of 1991.

Electricity Exports

Hydro-Québec - Two Applications for Licences - EH-3-89

On 28 July 1989, **Hydro-Québec** filed two applications for authorizations to export firm power and energy to the **New York Power Authority** and **Vermont Joint Owners**. **Hydro-Québec** proposed to export two blocks of firm power and energy to the **New York Power Authority**, the first block allowing for the export of 500 megawatts of power over a 20-year period commencing May 1995. The second block would allow for the export of the same quantities of power and energy during the 20-year period commencing 1 May 1996.

Hydro-Québec also requested approval to export seven blocks of firm power and energy to **Vermont Joint Owners** varying in size from 19 to 200 megawatts and varying in duration from 5 to 22 years during the period 1 May 1990 to 31 October 2020.

A hearing was held in Montreal, Quebec from 19 February to 1 March and concluded in Ottawa on 5 March.

The Board approved the applications and issued the licences subject to conditions that these shall remain valid to the extent that any production facility required by **Hydro-Québec** to supply the authorized exports, for which construction had not been authorized at the time of completion of the hearing, will have been subjected, prior to construction, to the Environmental Assessment and Review Process (EARP), and, secondly, that the generation of thermal electricity for export must meet federal environmental standards and guidelines. (Refer to *Legal Actions* on page 63)

The Governor in Council approved the seven licences.

New Brunswick Power - Two Applications for Renewal of Export Authorizations - EW-1-90/EW-2-90

In an application dated 15 February, **New Brunswick Power** requested approval of six licences to replace existing licences that were soon to expire. The requested authorizations were for varying durations and quantities and for both firm and interruptible energy exports to the New England States as well as several carrier transfers.

The Board also received an application dated 13 July from **New Brunswick Power** for authorizations to export firm electricity for varying durations to **Eastern Maine Electric Co-operative** and for authorization to export electricity as a carrier transfer.

The applications were the first major export authorization requests to be processed in accordance with the Board's Memorandum of Guidance of 22 June 1990 which described the steps it would follow to implement the new *Canadian Electricity Policy*.

The Board decided to consider both applications by way of a written procedure, seeking the views of interested parties on the proposed exports. The Board's review of the applications includes an environmental screening. The Governor in Council extended the termination date of the existing licences to 31 January 1991 so as to allow the exports to continue while the Board is continuing its review of the applications. A decision is expected in February of 1991.

Ontario Hydro - Renewal of Export Authorizations - EW-3-90

On 10 October, **Ontario Hydro** applied for the renewal of five export authorizations to allow the utility to continue exporting electricity to **The Consumers Power Company, The Detroit Edison Company, General Public Utilities, Minnesota Power, The New York Power Pool, Niagara Mohawk Power Corporation,** the **Power Authority of the State of New York,** and the **State of Vermont,** in accordance with existing agreements. The requested authorizations would cover exports of interruptible, firm and circulating power and energy and would vary in duration and size.

The Board issued Order EW-3-90 on 14 November, seeking the views of interested parties on the application.

The Board expects to render a decision early in the new year on whether to deal with the application without a public hearing or recommend to the Governor in Council that a public hearing be held.

Pipeline Facilities

TransCanada PipeLines Limited - 1991/1992 Facilities and Associated Gas Export Licences - GH-5-89

On 26 March, a public hearing commenced in Ottawa to consider an application dated 29 June 1989 from **TransCanada** for approval to expand its pipeline system by 1 November 1991 and 1 November 1992 to serve expanding domestic and export markets. The application, which was revised on 15 December 1989, included the construction of 1 592 kilometres of pipeline, the installation of 21 new compressor units and two new compressor stations. The pipeline includes one section of new pipeline, 4.5 kilometres long, at Iroquois, Ontario, the remaining portion consisting of parallel pipeline along **TransCanada's** system in Saskatchewan, Manitoba and Ontario. The facilities are estimated to cost $2.4 billion.

The Board also considered at the hearing 15 gas export applications associated with the facilities requested and two applications for orders, pursuant to section 71, requiring **TransCanada** to transport natural gas and to provide adequate facilities to transport the gas.

The Board also considered during the hearing certain toll-related issues including the appropriate toll treatment of construction cost overruns, cost of facilities which might turn out to be underutilized, and the toll methodology to be applied to the proposed facilities. These toll-related matters as well as the means by which economic feasibility of the proposed facilities could be determined were considered in a separate phase of the hearing held between 28 May and 26 September. On 6 November the Board issued its decision with respect to toll methodology and economic feasibility. The Board was of the view that the rolled-in methodology continues to be appropriate and decided that all facilities approved for **TransCanada's** 1991 and 1992 expansion program would be rolled into **TransCanada's** rate base for toll purposes. The Board also decided to make a determination of the economic feasibility of the pipeline facilities proposed in the GH-5-89 proceedings by having regard to evidence on all relevant factors which have an impact on the likelihood of the facilities being used at a reasonable level over their economic life and of the likelihood of the demand charges being paid.

As part of the GH-5-89 hearing, on 15 and 18 October the Board, at the request of **TransCanada**, considered the company's application for early approval to construct 391.4 kilometres of system-wide pipeline looping, the 4.5-kilometre

Iroquois extension and relocation of two portable compressor units at a total cost of $546 million. **TransCanada** requested early approval of the partial facilities to allow for their construction during the 1991-92 winter to ensure November 1991 service for its most assured requirements. The Board approved the application and issued its decision on 13 November. The Certificate of Public Convenience and Necessity received Governor in Council approval on 22 November.

On 19 November, the Board reconvened the hearing to consider the remaining facilities, gas export applications and other matters. The hearing ended on 13 December after 96 hearing days. The Board expects to issue its Reasons for Decision in the spring of 1991.

The Board conducted an environmental screening of the facilities, the export proposals and the section 71 applications and found that any potential adverse environmental effects and directly related social effects of the proposals would be insignificant or mitigable with known technology.

TransCanada PipeLines Limited - Gananoque Extension - GH-4-90

The Board held a public hearing in Kingston and Gananoque, Ontario to consider an application by **TransCanada** for approval to construct a new pipeline known as the "Gananoque Extension". The evidentiary portion of the hearing took 21 days, and final arguments were conducted in writing.

TransCanada proposed to construct a new pipeline extending 25.2 kilometres from its mainline east of Kingston to a point on the international border near Wolfe Island on the St. Lawrence River. The pipeline would transport natural gas to be exported by **Western Gas Marketing Limited**, as agent for **TransCanada**, to **Niagara Mohawk Power Corporation** in the State of New York, beginning 1 November 1991.

The Gananoque Extension facilities were originally considered in the GH-1-89 hearing together with several export proposals. Due to the level of concern surrounding the Gananoque Extension, the Board indicated on 2 August 1989 that, should the export application relating to the Gananoque Extension be approved, the GH-1-89 hearing would be reopened to hear further evidence on the facilities. In its decision of 20 November 1989, the Board denied **Western Gas Marketing's** export licence application and advised **TransCanada** that its application for a certificate with respect to the Gananoque Extension was denied.

In December 1989, the Board decided to conduct a review of the role of benefit-cost analysis in the Market-Base Procedure. In its GHW-4-89 Decision, the Board decided that it was no longer appropriate to use benefit-cost analysis as a determinative factor in gas export licensing, and as a result of this change in procedure, a review resulted in a gas export licence being issued to **Western Gas Marketing/TransCanada**. **TransCanada** filed an application on 9 March requesting the Board to review the denial of the Gananoque Extension facilities and, as a result, the Board convened a public hearing to consider **TransCanada's** facilities application.

The Board conducted an environmental screening of the application and determined that a public review of the application was required.

Many landowners and resident intervenors were actively involved in the process. In order to assist them, the Board performed a variety of administrative functions, such as taking on the normal intervenor responsibility of distributing intervenor evidence to all parties. As well, for the most part, evening sessions were conducted to provide local residents with an opportunity to participate in the hearing.

The Board expects to release a decision on the application in the spring of 1991. (Refer to *TransCanada - Gananoque Extension - RH-4-90* on page 41.)

Westcoast Energy Inc. - McMahon Plant - GH-5-90

By an application dated 6 June, **Westcoast** sought authorization to expand its McMahon Plant facilities in northeastern British Columbia to increase the raw gas processing capacity of the plant by 18 percent to 19.255 million cubic metres per day.

A two-day public hearing was held commencing on 20 August in Fort St. John, British Columbia.

The Board conducted an environmental screening of the proposal and found that any potential adverse environmental effects and directly related social effects would be insignificant or mitigable with known technology.

On 11 October the Board issued its decision to approve the project. The facilities are expected to be installed by November 1991 at an estimated cost of $108 million.

Westcoast Energy Inc. - Hossitl Pipeline Project - GH-8-90

A public hearing was held on 1 November in Ottawa to consider an application dated 7 September by **Westcoast** to construct a 44.9-kilometre pipeline at an estimated cost of $10.9 million. The pipeline, to be located in northeastern British Columbia, is required to enable **Westcoast** to provide firm raw gas transmission and processing services to **Unocal Canada Limited**. **Westcoast** also requested approval to levy a monthly surcharge for raw gas transmission service through the proposed facilities.

The Board conducted an environmental screening of the proposal and found that any potential adverse environmental effects and directly related social effects would be insignificant or mitigable with known technology.

The Board approved the facilities application and released its Reasons for Decision on 11 December. Governor in Council approval of the certificate was given on 13 December. The Board also approved the revised monthly surcharge on 3 January 1991.

Interprovincial Pipe Line Company, a division of Interhome Energy Inc. - Natural Gas Liquids Storage Facility - GHW-5-90/RH-3-90

By an application dated 30 April, **Interprovincial** sought approval of a proposal to construct a natural gas liquids storage facility to be built adjacent to **Interprovincial's** Edmonton terminal in 1991 at an estimated cost of $18 million. **Interprovincial** also applied for approval of a toll methodology for the proposed facility. The facility would include nine 350-metre sections of underground pipe-type storage vessels and related fill and pumpout lines and would allow shippers to accumulate natural gas liquids at the line rate and batch size needed for periodic injection into **Interprovincial's** pipeline system.

The Board also received from prospective shippers who had entered into a facilities support agreement with **Interprovincial**, applications to ensure their access to the facilities.

The Board decided to consider matters relating to the construction and installation of the facilities by means of a written hearing. An oral hearing was held from 12 to 17 November in Edmonton, Alberta to consider the need for the proposed facilities, the proposed toll design for these facilities and the shippers' applications with respect to access.

The Board will issue its decision in this matter in early 1991.

Interprovincial Pipe Line Company, a division of Interhome Energy Inc. - Camrose, Alberta Accident - OHW-1-89

On 15 November, the Board released its Reasons for Decision related to the two-phase review of a decision made in 1986 to adopt a Board Panel's Recommendation 5.9 in the investigation of a fatal accident in 1985 on **Interprovincial's** pipeline near Camrose, Alberta. The Recommendation required pipeline companies under the Board's jurisdiction to remove certain welds and to check the soundness of a sample of other welds.

The first phase consisted of a program of inspection or sampling with the intent of gathering evidence for the review. The second phase consisted of a review of the recommendation in view of the submissions filed by five companies and the comments received from interested parties on the submissions.

As a result of the review, the Board rescinded Recommendation 5.9 and substituted new requirements applicable, as a minimum standard, to all pipeline companies under the Board's jurisdiction. The scope of these requirements extends to welds performed before 23 July 1986 on liquid-filled pipe, except branch connection welds located under reinforced fittings. The Board also decided that the company-specific submissions it had received were acceptable.

In a related matter, the Board had invited industry to submit comments on the eleven other recommendations made in the inquiry panel's report. As a result of its review of these comments, the Board made a number of decisions during 1988 and 1989 in respect of the recommendations and approved corresponding amendments to the *Onshore Pipeline Regulations*.

Tolls and Tariffs

TransCanada PipeLines Limited - 1990 Tolls - RH-3-89

On 5 February 1990, the Board issued its decision, with reasons to follow, with respect to the new tolls to be charged by **TransCanada** effective 1 January 1990. Issuing the decision in this manner avoided the need for **TransCanada** to bill its customers on an interim basis. The Board released its Reasons for Decision in April.

At the hearing, which commenced in Ottawa on 27 November 1989, the Board examined **TransCanada's** proposed cost of service, rate base and rate of return for the 1990 test year. The hearing did not include an examination of toll design or tariff matters except for the throughput forecast.

The new tolls approved by the Board for firm service were 1.4 percent higher than the average 1989 tolls. The Board approved a rate of return on common equity of 13.25 percent for 1990.

Westcoast Energy Inc. - 1989/90 Tolls - RH-2-89

In March 1990, the Board released its Reasons for Decision on Phase II of the public hearing held in October and November 1989 to consider **Westcoast's** rate base, cost of service and rate of return for the 1990 test year. The Board had issued its decision on 19 December 1989. Following a request from **Westcoast**, the Board had also made the company's existing tolls interim, effective 1 January 1990.

On 15 February 1990, the Board, after receiving the views of interested parties, denied an application dated 29 November 1989 from the **Independent Petroleum Association of Canada** for a review of the Board's decision with respect to **Westcoast's** interruptible service tolls.

Westcoast Energy Inc. - 1991 Toll Application - RH-1-90

In an application dated 27 June, as amended, **Westcoast** filed for new tolls for the transportation of natural gas beginning 1 January 1991. The proposed tolls would increase the average toll for firm transportation service by about five percent. The company also applied to reduce the winter and summer tolls for interruptible service.

In its updated application, **Westcoast** requested a 5.9-percent increase in its revenue requirement, from $292.5 million to $309.8 million, an 8.8-percent increase in its rate base, from $820.2 million to $892 million, for capital construction the company intends to undertake during 1991, and an increase in its return on common equity from 13.5 percent to 14.375 percent.

A public hearing was held from 10 October to 6 November in Vancouver, British Columbia and in Ottawa. During the hearing the Board issued a decision on the tests to be used to determine whether a surcharge should be levied on a raw gas transmission expansion. The Board also decided that, if the expansion were to be located upstream of an underutilized processing plant, it would be appropriate to include a portion of the incremental firm processing revenues in the determination of the surcharge.

On 12 December, the Board issued a clarification of this decision in respect of **Westcoast's** raw gas transmission facility expansion policy, following receipt in October of a request for such clarification from the **Independent Petroleum Association of Canada**.

On 27 December, the Board issued its decision on changes to **Westcoast's** Queuing Procedures and Access Criteria. This decision was released early in order that a small amount of capacity, which became available at the McMahon Plant on 1 November 1990, could be contracted on a firm basis.

Pending release of its Reasons for Decision on the toll application early in 1991, the Board, on 27 December, made **Westcoast's** existing tolls interim, effective 1 January 1991.

Trans Québec & Maritimes Pipeline Inc. - 1991/1992 Tolls - RH-2-90

From 10 to 13 December, the Board held a public hearing in Ottawa to consider an application dated 17 July 1989, as revised, from **TQM** to increase its rate of return on common equity from 13.75 percent to 14.50 percent for both 1991 and 1992.

TQM's proposal forms part of an application to increase the tolls on its natural gas pipeline system by 9.4 percent in 1991 and a further 2.8 percent in 1992.

Matters other than rate of return were considered by written submissions prior to the public hearing, with argument on these matters being heard at the hearing.

Pending release of its Reasons for Decision on the toll application early in 1991, the Board, on 7 December, made **TQM's** existing tolls interim, effective 1 January 1991.

TransCanada PipeLines Limited - Gananoque Extension - RH-4-90

The Board held a hearing on 26 and 27 November in Ottawa, to determine the appropriate toll methodology to be applied to the costs associated with **TransCanada's** proposal to construct the Ganonoque Extension. (Refer to *TransCanada - Gananoque Extension - GH-4-90* at page 37.)

The Board expects to render a decision in this matter in the spring of 1991.

Other Board Activities

Oil

In 1990, the Board issued 115 orders for the export of crude oil and petroleum products. The Board receives monthly data from the industry on export volumes and prices for crude oil and petroleum products. The statistics are compiled and analyzed, and consolidated reports are issued to the industry and other interested parties on a monthly basis. Annual reports for crude oil and petroleum products covering export activities are published for the year.

Natural Gas

The Board issued 151 short-term orders for either the export or import of natural gas in 1990. This included one order for import and subsequent export under the new subsection 8(1)(e) of the *National Energy Board Part VI Regulations*. The Board also issued 18 new licences and amended 12 existing licences during the year. (See Gas Appendices 4 and 12.)

During 1990, the Board ensured that natural gas export transactions complied with licence terms and with approved contractual arrangements. It collected and published monthly data on export prices, sales, and associated transportation costs which were used by a committee of officials of federal and producing-province governments to assess export prices against domestic prices.

Propane and Butanes

During 1990, the Board continued to monitor exports of propane and butanes. In this regard, the Board issued 49 export orders for propane and 44 orders for the export of butanes. As a condition of the orders, companies submit monthly data to the Board on exports, including prices and volumes. In addition, companies provide information on their supply and disposition of these products. The data are analysed and aggregated reports are provided to the industry and other interested parties.

Ethane

For purposes of export regulation, ethane is subject to the same criteria as natural gas. In 1990 there were no orders issued to export ethane.

Electricity

During 1990, the Board continued to monitor electricity exports to ensure that transactions complied with the conditions contained in permits, licences and orders previously approved by the Board. It also issued seven export licences, 15 export permits, two export orders and amended the conditions of 11 licences and one power line certificate.

As part of the monitoring function, data on export volumes and revenues are received from each exporter and compiled into a monthly report which is issued to exporting utilities, government departments and other interested parties. The monthly report also includes data on import volumes and costs. A list of the quantities exported by each exporter under each licence, permit and order and the associated revenues, along with a list of the permits, licences and orders

issued in 1990, can be found in the Electricity Appendices. Information on import volumes by province and American region can also be found in these Appendices.

Canadian Electricity Policy

On 24 May, Bill C-23, an act to amend the *National Energy Board Act*, was proclaimed by the Governor in Council and came into force on 1 June. The amendment simplifies and reduces the regulatory requirements for electricity exports and international power lines. The new policy allows the Board to approve exports of electricity by issuing permits without a public hearing, unless the Governor in Council designates a proposed export for licensing which would necessitate a public hearing.

A Memorandum of Guidance which describes the changes to the Board's procedures and the proposed *National Energy Board Electricity Regulations* was sent to interested parties on 22 June.

Interprovincial Trade in Electricity

At the request of the Minister of Energy, Mines and Resources, the Board initiated a study in 1989 to identify and examine the measures that could be developed to:

- enhance interprovincial trade in electricity;
- encourage greater co-operation between electrical utilities; and
- enable buyers and sellers of electricity to have commercial access to available transmission capacity through intervening provinces for wheeling purposes. (Wheeling is the transmission of power belonging to one utility through the circuits of another utility for delivery to either a third party or back to the originating system.)

The Board's review is proceeding on two tracks; the first is concerned with inter-utility co-operation, the second with wheeling and transmission access. The review is being conducted in consultation with provincial governments, utilities and other interested parties.

Other Electrical Activities

During the year the Board continued to keep the Minister of Energy, Mines, and Resources informed of the status of electricity exports. The Board also continued to consult with and contribute to other government departments and industry groups in both Canada and the United States which coordinate the operation of electric power utilities throughout North America.

The Board provided the Department of Energy, Mines and Resources with technical assistance on a reliability analysis of **Manitoba Hydro's** Nelson River high-voltage direct-current transmission system.

Energy Studies

Canadian Energy Supply and Demand

During 1990, the Board announced that its staff would be updating the projections of energy supply and demand which were published in the September 1988 report entitled *Canadian Energy Supply and Demand, 1987-2005*. The Board indicated its intention to publish a report in mid-1991 containing an assessment of the total energy outlook for the period 1989 to 2010.

The Board made available two information packages for public comment. The first, issued in May, described preliminary views on assumptions, and the second, issued in the fall, provided preliminary projections. Consultations were also held with provincial governments and a wide variety of other interested parties.

The Board expects to publish a final report in mid-1991.

Pipeline Activities

The Board regulates 51 natural gas, oil and products pipeline companies for a total of 52 pipelines. These pipeline systems are shown in Figures 21 and 22.

All new pipeline facilities under the Board's jurisdiction must be authorized by the Board prior to construction and operation. The Board is responsible for monitoring the construction to ensure compliance with the Board's safety and environmental regulations and with any specific conditions of the approving order or certificate. In addition, the Board reviews construction and operating costs to ensure that toll payers receive cost-efficient service. Certificates are issued for new pipelines longer than 40 kilometres, if they are approved by the Board after it holds a public hearing, as required by the *National Energy Board Act*. All certificates are subject to approval by the Governor in Council. The orders and certificates issued during 1990 approving new pipeline facilities are listed in Oil and Gas Appendices 1, 2 and 3.

The *Onshore Pipeline Regulations* have been in effect since 1 September 1988. Proposed amendments to the regulations will be released to the industry for comment in 1991. These amendments will reflect the outcome of discussions between the Board and the Canadian Pipeline Industry Committee on the inquiry into a 1985 pipeline accident near Camrose, Alberta. In addition, the

Figure 21

Oil and Oil Products Pipeline Companies Regulated by the National Energy Board

1. Aurora Pipe Line Company
2. Cochin Pipe Lines Ltd.
3. Dome Kerrobert Pipeline Ltd. and Pan Canadian Kerrobert Pipeline Ltd.
4. Dome NGL Pipeline Ltd.
5. Dome NGL Pipeline Ltd. Amoco Canada Petroleum Company Ltd.
6. Esso Resources Canada Limited
7. Interprovincial Pipe Line Company, a division of Interhome Energy Inc.
8. Interprovincial Pipe Line (NW) Ltd.
9. Manito Pipelines Ltd.
10. Montreal Pipe Line Limited
11. Mont Resources Limited
12. Murphy Oil Company Ltd.
13. Northwest Transmission Company Limited
14. Petroleum Transmission Company
15. Polysar Hydrocarbons Limited
16. Pouce Coupé Pipe Line Ltd.
17. Shell Canada Products Limited
18. Sun Pipe Line Company
19. Trans Mountain Pipe Line Company Ltd.
20. Trans-Northern Pipelines Inc.
21. Wascana Pipe Line Ltd.
22. Westspur Pipe Line Company (1985) Inc.
23. Yukon Pipelines Limited

Figure 22

Gas Pipeline Companies Regulated by the National Energy Board

1. Alberta Natural Gas Company Ltd.
2. Amoco Canada Petroleum Company Ltd. (inactive)
3. Amoco Canada Resources Limited (inactive)
4. A.P.R. Pipeline Company Ltd.
5. Bonanza Oil and Gas Ltd.
6. B.P. Resources Canada Limited
7. Canadian Hunter Exploration Ltd.
8. Canadian-Montana Pipe Line Company
9. Champion Pipe Line Corporation Limited
10. Consumers' Gas (Canada) Limited
11. Foothills Pipe Lines Ltd.
12. ICG Transmission Holdings Ltd.
13. Many Islands Pipe Lines (Canada) Limited
14. Mid-Continent Pipelines Limited
15. Minell Pipeline Ltd.

16. Murphy Oil Company Ltd. (inactive)
17. Niagara Gas Transmission Limited
    (a) Ottawa River Crossing
    (b) St. Lawrence River crossing
18. Novacorp International Pipelines Ltd. (certified)
19. Peace River Transmission Company Limited
20. Poco Petroleums Ltd.
21. Saskatchewan Power Corporation
22. SCL Québec Pipeline Inc.
23. St. Clair Pipelines Ltd.
24. TransCanada PipeLines Limited
25. Trans Québec and Maritimes Pipeline Inc.
26. Union Gas Limited
27. Westcoast Energy Inc.
28. Foothills Dempster Lateral (Corridor)
29. 167496 Canada Ltd.

proposed amendments will include references to the new editions of the **Canadian Standard Association** (CSA) pipeline standards, which have also been amended to incorporate certain recommendations from the Board-industry deliberations on the Camrose incident.

The Board continues to rely on the **CSA** standards to provide the technical requirements for the design, construction, and operation of oil and gas pipelines under its jurisdiction. Accordingly, the Board is committed to maintaining a strong participation in the standards development activities of the **CSA**. The Board is currently represented on 27 of the **CSA's** committees, subcommittees and task forces.

On 19 November, the Board released its Reasons for Decision in regard to its review of Recommendation 5.9 of the Board's report on the Camrose incident. Recommendation 5.9 dealt with the integrity of existing welds made to liquid-filled pipelines. (Refer to *Hearings, Inquiries and Reviews* on page 39.)

Memorandum of Guidance - Regulation Group 2 Companies

Since the issuance of the original Memorandum of Guidance in 1985, numerous changes have occurred in the Board's legislation and regulations. To address these changes, the Board, on 22 November, issued an updated version of the Memorandum of Guidance on the regulation of Group 2 companies.

Compliance Monitoring, Audits and Inspections

On 8 March, the Board issued a letter to all companies under its jurisdiction describing the Board's procedures for enforcing compliance with the *Onshore Pipeline Regulations*. Under the new procedures, Board staff audit a company's documentation at the company's offices, inspect pipeline facilities, and receive assurance of voluntary compliance from the company's representatives. During the year, Board staff audited 11 of the pipeline companies under its jurisdiction.

During 1990, the Board inspected certain of the facilities of six Group 2 companies and performed documentation audits at the headquarters of these and of one Group 1 company. These inspections were directed at the evaluation of the operational, maintenance and safety practices of the pipeline companies and included the enforcement of Part II of the *Canada Labour Code* which focusses on occupational safety and health.

The Board also undertook several construction inspections, visiting six different spreads totalling 220 kilometres of pipeline construction. These inspections were used to monitor compliance with the *Onshore Pipeline Regulations* as well as specific conditions contained in the orders and certificates issued by the

Board. As a component of these inspection duties, the enforcement of Part II of the *Canada Labour Code* was carried out insofar as it applies to the pipeline companies' employees at the construction sites.

Northern Pipeline Agency

In 1990, the Northern Pipeline Agency continued to rely on Board staff for technical advice, in order to carry out its responsibilities under the *Northern Pipeline Act*. This advice was provided during the construction of a compressor station on the Saskatchewan segment of the pipeline system of **Foothills Pipe Lines Ltd.**, and during initial stages of the ongoing review of both **Foothills'** proposal to expand the capacity on the segment of its pipeline system in southern British Columbia and its proposal to expand the capacity of the eastern leg in Alberta.

Pipeline Incidents

The Board requires detailed reports of all incidents involving personal injury, fatality, pipeline malfunctions such as leaks, breaks, fires or explosions or any other events which result in a loss of service of a pipeline under its jurisdiction. The Board conducts public inquiries, if appropriate, to ascertain the cause of the incident and, when necessary, to establish specific measures to prevent a recurrence of that type of incident. These reports and inquiries are considered when reviewing pipeline safety, operational standards and regulatory requirements.

If a pipeline is damaged, the Board ensures that steps are taken to contain the spill of hydrocarbons, to provide protection to the public and property, and to repair the damaged pipeline as soon as possible so that essential service may be restored. The Board continues its surveillance of the site to ensure the effectiveness of the company's environmental rehabilitation program.

During 1990, the Board carried out a number of field inspections of pipeline incident locations to monitor the implementation of company emergency, safety and environmental protection procedures.

Table 7 identifies the causes of pipeline incidents in the last five years. A total of 47 incidents occurred in 1990. None of the incidents resulted in fatalities.

The apparent increase in pipeline incidents reported in 1989 and 1990 was due in part to the broader definition of reportable incidents contained in the *Onshore Pipeline Regulations* which came into effect on 1 September 1988. For example, the expanded definition classifies as "reportable incident" any injuries, regardless

Table 7

Causes of Pipeline Incidents 1986 - 1990

	1986	1987	1988	1989	1990
Defective Welds	0	3	3	5	0
Material Failure	5	4	7	12	12
Third Party Damage	3	8	6	2	5
Corrosion	10	8	4	3	1
Other[a]	10	15	18	26	29
Total	**28**	**38**	**38**	**48**	**47**

(a) Includes workplace and construction accidents, operator error, earth movements, and other miscellaneous causes.

of severity, which requires hospitalization. As well, any discharge of toxic substances into the environment which occurs during the construction, operation or abandonment of a pipeline must now be reported to the Board.

The *Canadian Transportation Accident and Safety Board Act* came into effect on 29 March. This Act established a new Board with its own mandate to conduct independent investigations and public inquiries, if necessary, into any commodity pipeline occurrence within its legislative jurisdiction. The Transportation Safety Board of Canada has priority over the National Energy Board with respect to the investigation of causes and contributing factors of incidents related to the operation of a pipeline.

It is anticipated that in 1991 the Transportation Safety Board of Canada and the Board will enter into a Memorandum of Understanding concerning their respective roles in future incident investigations.

Approvals and Constructions

During 1990, the Board held public hearings on applications for new facilities from **TransCanada PipeLines Limited, Westcoast Energy Inc.** and **Interprovincial Pipe Line Company, a division of Interhome Energy Inc.** (Refer to *Hearings, Inquires and Reviews* starting at page 35).

TransCanada PipeLines Limited constructed approximately 330 kilometres of looping along its system, two meter stations, and two compressor stations on the North Bay Shortcut pursuant to a certificate issued by the Board subsequent to hearings held in 1989.

During the year, the Board also authorized **Westcoast** to build the South Sukunka pipeline (12.3 kilometres) and the Peah pipeline (26.7 kilometres), which were placed in service during 1990. As well, the Hossitl pipeline (44.9 kilometres) which is expected to be in service as of 1 April 1991 was approved by the Board in December.

Foothills Pipe Lines Ltd. completed construction of two major facilities additions on the eastern leg. These included the decompression/recompression facility at Empress, Alberta to allow the operation of its high pressure pipeline to be isolated from the **NOVA Corporation of Alberta** system, and a new Compressor Station 393 near Val Marie, Saskatchewan to enhance system reliability and security. The latter project was constructed under the authority of the *Northern Pipeline Act*.

Alberta Natural Gas Company Ltd was granted approval for several projects, including modifications to the Kingsgate export meter station and the replacement of an existing compressor at Station 2A with a new, more efficient 13-megawatt unit.

Trans Québec & Maritimes Pipeline Inc. received approval for and constructed a sales tap at Lanoraie and a receipt/delivery station at Pointe-du-Lac for service to an underground reservoir.

The Board authorized **167496 Canada Ltd.**, a new federally incorporated pipeline company, to construct a 3.4-kilometre natural gas pipeline crossing the Alberta-Saskatchewan border. **BP Resources Canada Limited** received approval to build a two-kilometre gas gathering pipeline crossing the Alberta-British Columbia border near Dawson Creek, British Columbia.

In addition, the Board approved various other facilities applications from diverse companies dealing with receipt and delivery facilities, pipeline replacements, upgrading compressor and pump stations and modifications to existing pipeline facilities.

Environmental Matters

For nearly two decades, as part of its responsibilities under the *National Energy Board Act*, the Board has paid specific attention to environmental issues associated with regulatory decisions which involved the applications for certificates and orders to construct and operate pipelines, and international power lines. In making these decisions, the Board has taken into consideration environmental concerns related to such matters as air, land and water pollution,

disturbance of renewable and non-renewable resources, the integrity of natural habitats, the disruption of land and resource use, and the protection of landowner rights.

Companies planning to construct and operate pipelines or power lines are required to minimize negative environmental impacts and avoid extensive or irreversible damage to the land to be crossed. To ensure that such action indeed occurs, the Board examines all phases of project planning, construction and operation.

The environmental impact report submitted by the applicant as part of a pipeline or power line project application is an important first step in the Board's review process. The report describes in detail the proposed pipeline or power line corridor in its existing state, the anticipated impact of the project on that corridor, any public concerns associated with the project, and the procedures to be implemented by the company to mitigate any impacts. In addition, the Board ensures that, where negative effects on the environment cannot be avoided, companies implement the proper mitigative measures during construction and during the rehabilitation of the affected area. Where potential impacts on the environment are identified, the Board requires the development of an 'environmental issues list' which is used as a method of tracking the status of issues during the construction and operation of a project. The issues list complements the environmental assessment process and provides a focus for environmental protection activity during all phases of a project.

The Board conducts periodic inspections during pipeline and power line construction as part of its environmental protection program to ensure compliance with the companies' environmental protection procedures and the Board's requirements. Companies constructing energy transmission facilities also must submit post-construction monitoring reports which document the restoration of the right-of-way following construction and which update the environmental issues lists.

Furthermore, the Board ensures that pipelines are operated and maintained in an environmentally acceptable manner. The Board's activities include periodic inspections to monitor the condition of right-of-ways and inspections of pipeline incident sites to ensure that environmental protection, restoration and maintenance measures are fully implemented. The Board conducts periodic inspections of pipeline pump and compressor stations, including noise surveys and inspections of hazardous material storage facilities. In addition, the Board monitors the operation of several gas plants operated by **Westcoast Energy Inc.**, with particular emphasis on surveillance of sulphur emissions and effluents from waste-water ponds.

In 1990, the Board carried out periodic environmental inspections of several pipeline construction projects, including **TransCanada PipeLines Limited's** looping project through a portion of the Great Sand Hills of Saskatchewan. That work was of special public interest because of a land-use moratorium imposed in July of 1990 by the Government of Saskatchewan's Department of Environment and Public Safety on the sensitive core area of the Great Sand Hills. **TransCanada** will, in complying with Board regulations, submit environmental monitoring reports in December of 1991 and 1992. Where necessary, additional remedial action will be taken to repair any damaged sites in the Great Sand Hills.

In addition to carrying out periodic environmental inspections of construction activities in 1990, Board inspectors also monitored the right-of-ways of projects completed in 1988 and 1989. They included **TransCanada's** 1988 and 1989 looping program in the Niagara region, its 1989 looping program in northwestern Ontario and **Westcoast's** Umbach Line and North Jedney Extension in northeastern British Columbia. The restoration of the right-of-ways inspected in 1990 continues satisfactorily with few environmental impacts resulting from the construction projects. The Board will continue to monitor those right-of-ways to ensure that they are fully restored.

Presently, 11 companies under the Board's jurisdiction have operating equipment which contain polychlorinated biphenyls (PCB) contaminated materials in storage. The Board requires companies to provide updated inventories of PCBs still in service or in storage, and conducts inspections where appropriate. As well, the Board monitors PCBs in storage and in service at facilities under its jurisdiction. Five inspections conducted in 1990 found that one site no longer contains PCBs, as the material has been shipped to and is awaiting destruction at a provincial PCB storage facility, while the other four sites have been brought into compliance with the federal *Interim Order Respecting the Storage of Wastes Containing Chlorobiphenyls*.

New Initiatives

The last two years have seen an increase in public awareness and a number of developments in governmental policy regarding environmental matters. In response to these developments, several new environmental initiatives have been undertaken by the Board.

During 1990, the Board released its Memorandum of Guidance dealing with early public notification of proposed energy projects. The intent of the Memorandum of Guidance is to provide for public input during the planning and development stage of projects. Public input may then be incorporated into application proposals to the Board. It is anticipated that providing early public

notification of proposed applications and timely public input will allow those who may be directly affected by a project to more effectively express their views, ultimately improving the Board's regulatory process.

Recognizing the close and important relationship between energy and the environment, Board staff is examining the implications of certain energy supply and demand forecasts to be considered in the Board's next report on *Canadian Energy Supply and Demand*, to be released in 1991. The role of the Environment Branch in this study is to provide advice on environmental matters, specifically relating to emissions of certain gases associated with the production and consumption of fossil fuels.

Two major influences on environmental matters which occurred during 1989 and 1990 were the decisions of the Federal Court regarding the Rafferty-Alameda and the Oldman River Projects. These decisions asserted that the *Environmental Assessment and Review Process Guidelines Order* ("the *EARP Guidelines Order*") should be interpreted as a law of general application rather than as a mere guideline. Consequently, each federal department and agency must now take into consideration the environmental implications of all proposals which it plans to undertake, or for which it has financial, regulatory or administrative decision-making authority.

With the application of the *EARP Guidelines Order* as a law, the Board undertook an examination of its environmental review activities. As a result, the Board has standardized its screening process to make it comparible with the *EARP Guidelines Order*. In addition to its review of applications for various facilities, the Board conducted environmental screenings of applications for exports, with the aim of determining the significance of any environmental issues which might be associated with the proposed exports. To provide guidance to applicants in preparing environmental assessments for gas export proposals, a generic information request was developed.

The requirement to conduct environmental screenings for gas exports increased the Board's environmental workload in 1990. During 1990, the Board screened a total of 54 applications for gas and electricity exports through its public hearing process, 14 of which were dealt with through written procedures. At year-end, the Board was considering screening documents for four additional export applications, including the development of Mackenzie Delta gas reserves which had been previously approved by the Board for licensing.

To contend with this increasing workload and to avoid an undue regulatory burden on applicants, an 'exclusion list' was developed in cooperation with the Federal Environmental Assessment Review Office (FEARO). The list identifies

the types of proposals that would not normally be expected to produce any adverse environmental effects and, as a result, would be automatically excluded from further examination under the *EARP Guidelines Order*.

The Board has also developed a draft 'categorical assessment' for exports of natural gas from conventional production areas which has been submitted to FEARO for review. The term 'categorical assessment' is intended to apply to certain categories of projects for which the environmental issues are similar and mitigative measures known. The implementation of a categorical assessment for natural gas exports from Canada would help to streamline the environmental review of those types of proposals.

Third-Party Crossing Matters

The *National Energy Board Pipeline Crossing Regulations, Part I* and *Part II* (the *Pipeline Crossing Regulations*), establish requirements for third-party excavation and construction activities affecting pipelines. 1990 was the second full year that the regulations were in effect and, as in 1989, there was no need for the Board to issue any third-party crossing approvals.

The Board continued to monitor compliance with the regulations, encourage safe construction and excavation practices near pipelines, and promote public awareness of the pipeline crossing regulations through:

- 90 detailed investigations of third-party violations reported by the pipeline companies;
- 31 random field inspections of construction and excavation activities affecting pipelines;
- audits of the crossing records of ten pipeline companies and reviews of their public awareness programs for third-party damage prevention; and
- presentations and meetings with utilities, excavators and various agencies across the country.

In 1990, section 112 of the Act was amended to include certain third-party activities that caused concerns but had not been covered previously. Excavation using mechanical equipment and explosives within 30 metres of a pipeline is now subject to the *Pipeline Crossing Regulations*. Operation of a vehicle or motorized equipment across a pipeline outside the travelled portion of a public road requires the permission of the pipeline company. These amendments allow the pipeline companies to establish general conditions to protect their pipelines from damage caused by such activities.

In June 1990, the Board published a guide entitled *Excavation and Construction Near Pipelines* to assist those involved in third-party activities that may affect Board-regulated pipelines. The guide has a brief explanation of the responsibilities set out in the *Pipeline Crossing Regulations* and includes the regulations, maps showing the general locations of Board-regulated pipelines, and contact lists for Board and pipeline company staff.

Financial Regulatory Matters

Section 59 of the Act states that "the Board may make orders with respect to all matters relating to traffic, tolls or tariffs". The wide scope of this authority is governed by the requirement in section 62 that "all tolls shall be just and reasonable, and shall always, under substantially similar circumstances and conditions ... be charged equally to all persons at the same rate". Fulfilling this responsibility is the basic purpose of the financial regulatory activities of the Board.

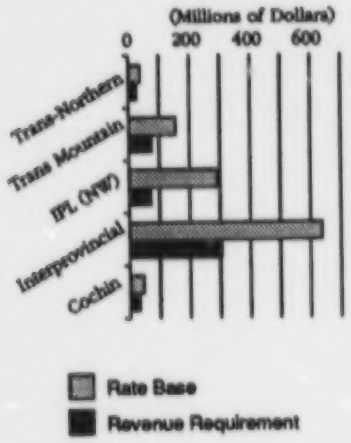
Of these activities, toll adjustment proceedings are the most visible to the public. However, it is equally important to the Board to ensure that tolls remain just and reasonable on an ongoing basis by monitoring the operations of the pipelines. This is achieved through the regular surveillance of the financial performance of the regulated companies and the audit of their books and records by Board staff.

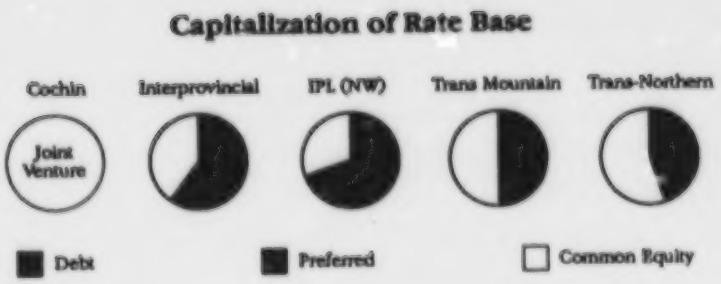
At present there are 52 pipelines under the Board's jurisdiction, of which 28 are for the transmission of natural gas, and 24 are for the transportation or storage of oil and petroleum products.

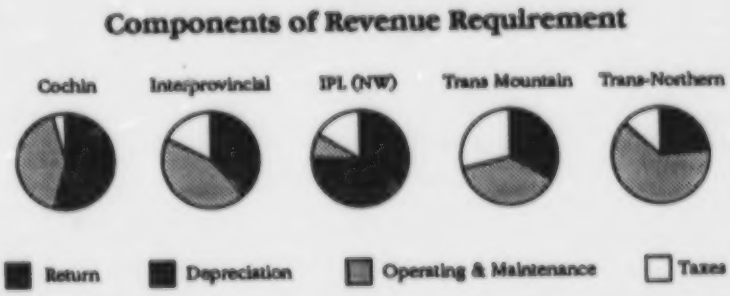
For purposes of financial regulation, the pipelines are divided into two groups: Group 1 consists of the ten major pipeline companies and Group 2 encompasses the remaining smaller pipeline companies. This grouping of the pipelines, introduced by the Board in 1985, was aimed at modifying the degree of financial regulation of the pipelines in proportion to the extent of the public interest in their operations. While the Board may undertake on its own initiative a review of the tolls of any company under its jurisdiction, the tolls of the Group 2 companies are normally reviewed only on receipt of a complaint. Otherwise, the monitoring of the Group 2 companies consists primarily of reviewing their financial performance.

The operations of the Group 1 companies are monitored through the review of surveillance reports filed by the companies on a quarterly basis, and through periodic audits. Increases in the tolls or amendments to the tariffs of these companies must receive Board approval before implementation. The process

Figure 23
Group 1 Oil Pipelines
Rate Base and Revenue Requirement

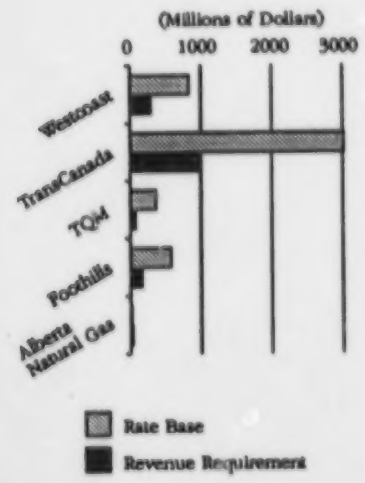


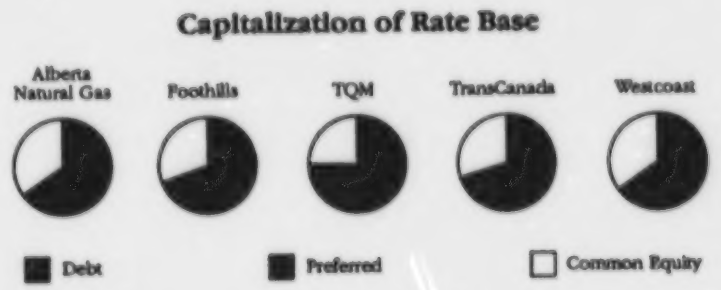


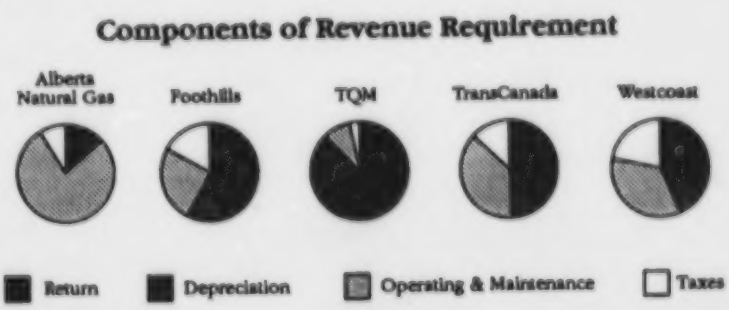


Reference: Financial Regulation Appendix 1

Figure 24
Group 1 Gas Pipelines
Rate Base and Revenue Requirement







Reference: Financial Regulation Appendix 2

whereby applications for toll adjustments are reviewed can vary depending on the degree of public interest. If warranted, an oral public hearing is held giving interested parties an opportunity to appear before the Board to make their representations. Alternatively, the review of the applications may be conducted by written submissions.

Within Group 1, however, three pipeline companies have had their tolls and tariffs regulated on a complaint basis since 1987, in order to reduce the regulatory burden. The three pipelines are **Alberta Natural Gas Company Ltd, Interprovincial Pipe Line (NW) Ltd. and Cochin Pipe Lines Ltd.**

Group 1 Toll Adjustments

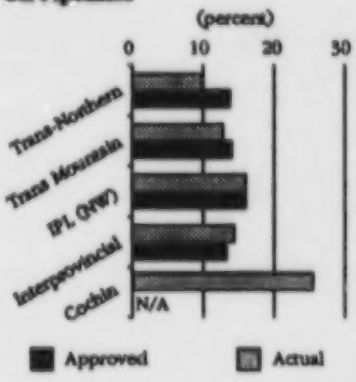
During 1990 the Board held public hearings for the consideration of the tolls and tariffs of **TransCanada PipeLines Limited, Westcoast Energy Inc.** and **Trans Québec & Maritimes Pipeline Inc.**, and for toll design aspects of facility applications from **TransCanada PipeLines Limited** and **Interprovincial Pipe Line Company, a division of Interhome Energy Inc.**, all of which are reported under *Hearings, Inquiries and Reviews* starting at page 39.

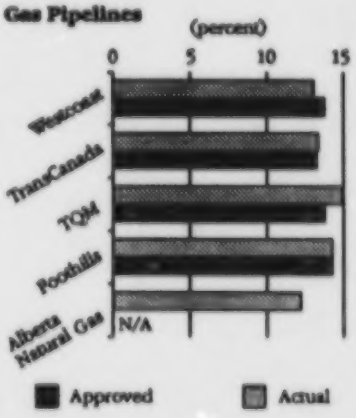
A number of non-hearing toll adjustment proceedings took place in 1990, some having been initiated in 1989. Also, some proceedings were initiated late in 1990 and will not be completed until early in 1991.

On 3 August 1989, the Board directed **Alberta Natural Gas Company Ltd** to review its gas transportation contracts with its shippers with a view to eliminating certain shortcomings, including the elimination of discriminatory tariff provisions and the establishment of clear terms of access in a published uniform tariff. Taking into account the comments of industry, the Board directed **Alberta Natural Gas** to review its gas transportation contracts in consultation with its shippers and to file a uniform tariff for the Board's approval in 1990. Alberta Natural Gas filed its tariff with the Board on 11 April and revised it on 30 May. On 13 September, Alberta Natural Gas requested that the Board include, as part of its tariff review, the views of 18 prospective shippers on the planned expansion of the company's system. The Board has set dates for interested parties to comment on the proposed tariff.

In December 1989, the Board directed **Alberta Natural Gas** to modify its calculation of monthly cost of service for tariff and billing purposes. The need for this change was based on the Board's surveillance of the company's operations during 1989. In March 1990, following receipt of an application from the company under section 21 of the Act for review of the Board's decision, the Board decided to conduct such a review. The Board issued its decision on this

Figure 25
Group 1 Companies
Rate of Return on Common Equity





1990 Common Equity

Oil Pipelines	Ratio	% Return
Cochin	N/A	25.50
Interprovincial	40	14.37
IPL (NW)	51	16.00
Trans Mountain	50	12.80
Trans-Northern	55	9.97
Gas Pipelines		
Alberta Natural Gas	35	12.17
Foothills	31	14.25
TQM	25	14.87
TransCanada	30	13.35
Westcoast	35	13.07

Reference: Financial Regulation Appendices

matter on 5 July, re-affirming its earlier directive. At the same time the Board invited comments on a proposal for a further refinement of the method of calculating the company's cost of service in respect of long-and short-term debt. During the period August to October, comments were received from interested parties and the company. These comments are currently under review.

On 30 October 1989, an application was filed by **Trans Mountain Pipe Line Company Ltd.** for an adjustment of the company's tolls for 1990, based on anticipated increases in its cost of service. In December 1989, the Board issued an interim order, effective 1 January 1990, allowing **Trans Mountain** to charge its then existing tolls pending a final decision on its application which was being processed by means of written submissions. During the ensuing months, the company filed a number of revisions to its original application, reflecting minor changes in its throughput forecast and related adjustments to its revenue requirements for fuel and power costs in particular. On 21 April the Board issued Order TO-2-90 approving a cost of service of $79,319,000, and a throughput forecast of 27 690 cubic metres per day. The average increase in the tolls was about 30 percent over the 1989 approved amount. This was attributable to an approved increase in rate base of 52.5 percent due, in large part, to the inclusion of the major portion of a $57 million expansion of the pipeline system carried over from 1989.

Interprovincial Pipe Line Company, a division Interhome Energy Inc. applied on 30 October 1989 to increase its tolls by approximately 15 percent for the transportation of oil and related products to be effective 1 January 1990. The Board made **Interprovincial's** existing tolls interim effective 1 January 1990. On 8 March, the Board decided that certain modifications to the tolls contained in the application were required and directed the company to recalculate its tolls using the toll design approved by the Board in the RHW-1-89 Reasons for Decision dated November 1989. On 30 March the Board approved the revised tolls and tariff and issued Order TO-1-90. The Board, having noted the amount of time which had elapsed since **Interprovincial's** tolls had been reviewed in a public hearing and the number of issues which remained outstanding, requested the company to file an application for a hearing into 1991 tolls by 31 July 1990. On that date, the company requested the Board to defer this filing requirement for a year. The Board granted the request. However, on 27 September, **Interprovincial** applied to the Board for approval of new tolls for 1991, requesting a six-percent increase over the approved tolls for the full year 1990. The company was forecasting an increase in its revenue requirements of 4.8 percent because of a rise in operating costs. Though **Interprovincial** was forecasting a three-percent increase in throughput, a decline in the total volume-distance units also contributed to the need for an increase in the tolls. After considering submissions from interested parties, on

28 December the Board approved, effective 1 January 1991, an increase in tolls of 7.2 percent over the approved tolls for the full year 1990, or 3.5 percent over the tolls approved on 30 March 1990.

Trans-Northern Pipelines Inc. filed an application for new tolls for the transportation of refined petroleum products effective 1 July 1990. The tolls would increase the average toll for transportation service by about 10.6 percent. The company was requesting a 7.9-percent increase in its revenue requirement, and though total forecast deliveries were relatively unchanged, the company forecast a reduction in the average length of haul. The company also asked that its existing tolls be made interim until the Board rendered a decision on the requested toll increase. The Board approved the request for interim tolls effective 15 July 1990. On 22 November 1990, the Board approved a 9.8-percent increase in tolls effective 1 December 1990. The company was also allowed to collect the difference between the final and interim tolls for the period 15 July to 30 November 1990.

Trans Mountain Pipe Line Company Ltd. filed an application on 15 October 1990 for an average increase of six percent in the tolls it charges for transportation services, effective 1 January 1991. The company stated that the requested increase was to provide for a 7.4-percent increase in its cost of service, offset by a forecasted increase in the 1991 throughput levels. On 28 December, the Board approved a 6.4-percent average increase in tolls.

Toll Adjustment Procedures

On 29 January 1990, the Board invited parties to comment on the toll adjustment procedures for **Interprovincial, Trans Mountain** and **Trans-Northern** as set out in Orders TO-4-85, TO-5-85 and TO-6-85, respectively. The Board initiated a review of the continued appropriateness of these toll adjustment procedures, used in the processing of toll applications by written submissions, because recent experience indicated that there was some uncertainty regarding various deadlines and because of repeated requests for extensions to the deadlines set out in the toll orders. On 23 August, the Board issued interim procedures pending the completion of its review, which is in progress.

Task Forces

In its decision on the hearing held under RH-2-87 on **Westcoast Energy Inc.'s tolls**, the Board directed **Westcoast** to conduct a joint industry study of the design of its gathering and processing tolls. Upon completion of this study, **Westcoast** set up task forces to attempt to resolve operating, and toll and tariff matters which could be more expeditiously addressed outside of the public

hearing process. These task forces have been very successful in resolving issues outright, and in reducing the number of issues which normally require examination at a public hearing. Following the success experienced in this regard with respect to **Westcoast, TransCanada PipeLines Limited** recently established an industry task force to address a number of issues before its next toll hearing. **TransCanada's** objective was to be able to reach negotiated settlements of these issues. Upon filing its application for interim tolls to be effective 1 January 1991, **TransCanada** advised the Board that all parties to its joint industry task force concurred with its application for interim tolls. These efforts at negotiated settlements are expected to continue and should result in considerable savings of resources for all concerned.

Regulatory Audits

Since its inception, the Board has used regulatory audits as a means of verifying and monitoring the financial operations of regulated companies. Section 129 of the *National Energy Board Act* is specific in its requirements that the companies under the Board's jurisdiction make their records available for inspection by representatives of the Board. In October 1989, the Board adopted a new Financial Regulatory Audit Policy which includes a set of uniform and consistent audit terms of reference, objectives and guidelines to apply to the companies under its jurisdiction. Of particular interest is the Board's undertaking not to place any sensitive material on the public record, but to request a company to do so if the Board considers it to be necessary. This provides the company with an opportunity to make a case before the Board for maintaining confidentiality. During 1990, five of the Group 1 pipeline companies were audited by Board staff. Copies of the reports, some of which contain the Board auditors' recommendations, are available to the public upon request.

Financial Information

The 1990 financial information for the Group 1 companies is provided in the Financial Regulation Appendices 1 and 2. These tables are the source for the information on rate base and revenue requirements illustrated in Figures 23 and 24 for the oil and gas pipelines, respectively. Figure 25 provides a comparison of the rates of return on common equity approved by the Board for each of the companies with the actual rates they earned.

Legal Actions

Midland Cogeneration Venture Limited Partnership

On 31 July 1989, **Midland Cogeneration Venture Limited Partnership** applied to the Federal Court of Appeal for leave to appeal the Board's June 1989 decision in which the Board granted licences to five Canadian companies to export natural gas to **Midland** and **Consumers Power Company** and conditioned the licences so that the exports to **Midland** could not exceed those to **Consumers Power** in any one year.

After obtaining leave to appeal in September 1989, Midland filed a notice of appeal with the Federal Court of Appeal on 17 November 1989. By a letter to the Court dated 29 November, **Midland** indicated that it was assessing the timeframe within which it wished to pursue this appeal and requested that the Court defer consideration of the appeal case until **Midland** finalized its plans and so advised the Court.

In related actions, the five licence-holders applied to the Board under subsection 21(2) of the Act for orders varying the licence conditions that linked the **Midland**-related sales to those made to **Consumers Power**.

The applicants argued that the licence conditions would create substantial operational, financial and regulatory difficulties for **Midland**. The Board was persuaded by this argument and decided, on 22 January 1990, to recommend to the Governor in Council that the licences be amended to provide the exporters with greater flexibility.

On 11 May 1990, **Midland** filed a Notice of Discontinuance with the Court.

Indeck Gas Supply Corporation, Niagara Mohawk Power Corporation, Shell Canada Limited and Western Gas Marketing Limited as Agent for TransCanada PipeLines Limited

On 20 November 1989, the Board issued its decision, with reasons to follow, in respect of a hearing held pursuant to GH-1-89 in which, among other things, it denied applications for gas export licences.

On 20 December 1989, **Western Gas Marketing Limited** filed with the Federal Court of Appeal a notice of motion requesting an extension of time within which to file an application for leave to appeal the Board's GH-1-89 decision. The *National Energy Board Act* requires that applications for leave to

appeal be filed with the Court within one month after the making of the decision sought to be appealed or within such further time as a judge of that Court under special circumstance allows: in the case at hand, **Western Gas Marketing** had not had an opportunity within the one-month period to review the Board's Reasons for Decisions. The Court provided **Western Gas Marketing** with an extension of 15 days following receipt of the Reasons for Decision for filing its application for leave to appeal.

On 19 December 1989, **Indeck Gas Supply Corporation** also filed an application for an extension of time within which to file an application for leave to appeal as well as a notice of application for leave to appeal. **Shell Canada Limited** filed a similar application for an extension of time on 19 December 1989. On 20 December 1989, **Niagara Mohawk Power Corporation** filed an application with the Court for leave to appeal.

All these actions related for the most part to the fairness of the procedure used by the Board in conducting its benefit-cost analysis in assessing the export applications in question and to the question of whether the use of benefit-cost analysis to restrict exports is contrary to the Free Trade Agreement.

On 18 December 1989, the Board decided on its own motion to review the role that benefit-cost analysis should play in the Market-Based Procedure employed by the Board in considering applications for licences to export natural gas. The Board took that decision in light of concerns expressed by interested parties at a November 1989 workshop held by Board staff to discuss the use of this type of analysis. (Refer to *Review of Aspects of the Market-Based Procedure* on page 30.)

After completion of its review, the Board decided that it would no longer use benefit-cost analysis in considering applications for export licences. As benefit-cost analysis had been a major criterion leading to the denial of the four above-mentioned export licence applications, the Board held a public hearing (GH-1-90) in March 1990 to review those denials. (Refer to *Review of Export Applications Previously Denied* on page 31.)

Export licences with respect to the three export proposals referred to above have now been issued by the Board and approved by Governor in Council.

All appellants have discontinued their Court applications.

Industrial Gas Users Association

On 21 December 1989, the **Industrial Gas Users Association** applied to the Federal Court (Trial Division) for orders:

(a) setting aside the decision taken at the GH-5-89 pre-hearing conference not to include alternative toll methodology in the list of issues to be considered in GH-5-89;

(b) requiring the Board to add this issue to the List of Issues; and

(c) prohibiting the Board from commencing the hearing until this issue was included.

The Federal Court considered the application on 6 and 7 February and granted the **Association's** motion on 12 February. Consequently the Board amended the GH-5-89 List of Issues to include a consideration of the appropriate toll treatment of the costs of the proposed facilities.

On 28 May, the **Association** again applied to the Federal Court arguing that the Board had interpreted the Court's 12 February decision too narrowly and requesting a direction by the Court that the issue of toll methodology be considered not only with respect to traffic on the applied-for facilities but with respect to traffic on previously certificated facilities as well. The Court heard the motion on 15 and 16 August and denied the **Association's** request in a decision rendered on 17 August .

Hydro-Québec, le Procureur général du Québec and the Grand Council of the Crees (of Quebec) - EH-3-89

On 26 October, **Hydro-Québec** and the **Grand Council of the Crees (of Quebec)** filed with the Federal Court of Appeal applications for leave to appeal the Board's decision of August to issue licences to **Hydro-Québec** for exports of firm electricity to the **Vermont Joint Owners** and the **New York Power Authority**.

Hydro-Québec's grounds for appeal are that the Board exceeded its jurisdiction when the Board, first, included in its licences a condition requiring that future generating facilities related to the proposed exports be subject to the applicable federal environmental review processes; and, secondly, when the Board required that the generation of thermal electricity for export meet federal

environmental standards and guidelines. **Hydro-Québec** argues that its generation facilities are local works under the exclusive jurisdiction of the province of Quebec and thus not subject to federal environmental regulation. The appellant further holds that federal regulation of its proposed facilities would unduly duplicate provincial review processes and standards.

The **Grand Council** argues that the Board erred in applying Bill C-23 to the applications of **Hydro-Québec** filed with the Board prior to the coming into force on 1 June 1990 of Bill C-23. The Grand Council is of the view that the Board had to apply paragraph 118(b) of the Act as it read before the coming into force of Bill C-23 to the applications of **Hydro-Québec** and should have found the export price to be just and reasonable in the public interest. The **Grand Council** further argues that the Board could not make such a finding because of the insufficient evidence filed by **Hydro-Québec**.

On 31 October, the Board was served with the application for leave to appeal of **le Procureur général du Québec**. In addition to the grounds already raised by **Hydro-Québec, le Procureur général** also argues that the *Environment Assessment and Review Process Guidelines Order* does not apply to the Crown in right of a province and that the provisions of paragraph 119.06(2)(b) of the Act directing the Board to have regard to the environmental impacts of electricity exports are unconstitutional.

The Federal Court of Appeal, on 28 November, granted the applications for leave to appeal of all three appellants.

Le Procureur général, Hydro-Québec and the **Grand Council** filed their notices of appeal on 7, 10 and 18 December 1990, respectively.

LEGISLATION AND REGULATION

The following section outlines changes that were made during 1990 to the *National Energy Board Act*, regulations, and rules under which the Board operates. The Board's quarterly *Regulatory Agenda* provides additional detail on these matters.

National Energy Board Act

Bill C-23, an Act to amend the National Energy Board Act and to repeal certain enactments in consequence thereof, was approved by the Senate and given Royal Assent on 29 March and was proclaimed on 24 May 1990. The Governor in Council issued an Order providing for the bill to come into force on 1 June 1990.

The purpose of Bill C-23 is twofold. First, it gives effect to the government's policy respecting the regulation of electricity trade announced in September 1988. Second, it allows the Board to recover the cost of its operation from the industry it regulates.

The basic principle governing the government's policy on the regulation of electricity trade and underlying the amendments contained in Bill C-23 is that there should be no unwarranted duplication of federal and provincial regulation.

Applicants seeking to export electricity or to build an international power line will continue to submit their proposals to the Board. Upon receiving the application, the Board will ensure that a notice is published in the *Canada Gazette*, and in such other publications as the Board considers appropriate.

The Board will then carry out an initial review of the application. In deciding whether there is a need to complement measures taken by the applicant and the sponsoring provinces, the Board will have regard to all considerations that appear to it to be relevant, including:

- any impacts that a proposed export or international power line might have on provinces other than the sponsoring province;
- the environmental impacts of the proposal; and
- in the case of a proposed export, whether Canadians wishing to buy electricity from the applicant to serve their own domestic needs have been

able to do so on terms no less favourable than the terms being offered to export customers.

If the Board is satisfied that the assessments and mitigating measures carried out by the applicant and the sponsoring provinces have adequately addressed all relevant concerns, the applicant will receive its authorization in the form of a permit. However, if there are reasons to believe that the proposal may not be in the public interest, the Board will recommend to the Minister of Energy, Mines and Resources that a public hearing be held. The Board's advice will be made public.

If the Governor in Council, on the advice of the Minister, accepts the Board's recommendation, there will be a public hearing conducted by the Board. The Board will either deny the application or issue a licence in the case of exports or a certificate in the case of power lines, subject to the approval of the Governor in Council.

Bill C-23 also changed the way that detailed routing of international power lines is determined. In all cases, the Board will continue to authorize the general corridor through which the line will pass, but the precise location of the line within this corridor will be determined by provincial regulatory procedures, and any expropriation that may be necessary will be carried out under provincial laws. However, as an exception to this general procedure, an applicant may elect to have federal law govern the precise location and construction of an international power line.

The procedures for the regulation of interprovincial power lines were not changed from those previously in the Act. For the most part, such lines will be regulated by the provinces through which they pass. However, the Governor in Council may, by order, designate that an interprovincial power line be certificated by the Board. When such an order is made, the detailed location and construction of the line will be governed under federal law.

Finally, the maximum duration of export authorizations for electricity, previously limited to 25 years, has been extended to 30 years.

Other amendments that do not relate specifically to electricity are in the nature of "housekeeping amendments" such as the redefinition of certain terms to facilitate the application of the Act or the clarification of certain powers of the

Board with respect to such matters as accident inquiries, accounting practices and repairs to pipelines. More significant changes provide for a reduction in the number of permanent Board Members from 11 to a maximum of 9, the deletion of the three Associate Vice-Chairmen's positions and the introduction of recovery of the Board's costs from the industry it regulates.

Onshore Pipeline Regulations

The *Onshore Pipeline Regulations* specify the requirements for the protection of property, the environment, and the safety of the public and the company's employees in the construction, operation and abandonment of an onshore pipeline. During 1990, proposed amendments to the regulations were drafted to reflect the outcome of lengthy Board-industry deliberations on the recommendations included in the Board's report of June 1986 on the 1985 Camrose, Alberta accident on the pipeline system of **Interprovincial Pipe Line Company, a division of Interhome Energy Inc.**.

The proposed amendments will be issued for comments in 1991 (See *Interprovincial Pipe Line Company, Camrose, Alberta Accident - OHW-1-89* on page 39.)

These forthcoming amendments will address the maintenance and operation of onshore oil and gas pipelines under the Board's jurisdiction. For example, improvements in welding techniques, control systems and safety training programs will be covered. Also included will be improvements to certain portions of the Regulations based on the Board's experience since the *Onshore Pipeline Regulations* were introduced in 1988. These changes will be subject to a full public review and commenting process during 1991.

Offshore Pipeline Regulations

Draft *Offshore Pipeline Regulations*, based on the standards of the **Canadian Standards Association**, have been developed in close cooperation with the industry. The regulations are being prepared in anticipation of the development of offshore production and will address the safety and environmental protection requirements for the construction, operation and abandonment of offshore pipelines.

In December, the Board approved the regulations following their review by the Department of Justice and forwarded them to the Minister of Energy, Mines and Resources with a request for prepublication in Part I of the *Canada Gazette*.

Gas Plant Regulations

The Board is drafting Gas Plant Regulations to provide for the safe design, construction and operation of gas plants under its jurisdiction. These regulations will be incorporated into the *Onshore Pipeline Regulations*. The Board expects to issue these regulations for comment by mid-1991.

Rules of Practice and Procedure

The Board issued a revised draft of the *NEB Rules of Practice and Procedure* on 7 May 1987 and directed all parties to use them as of that date. During 1990, the Board continued reviewing them in light of the amendments to the Act as a result of Bill C-23, changes in export regulation, the Environmental Assessment and Review Process and comments received from the Department of Justice following the latter's initial examination of the 1987 draft.

The revised draft will require further examination by the Department of Justice and publication in the *Canada Gazette* before it is made final.

International Power Line Crossing Regulations

During 1988, on the advice of the Department of Justice, the Board divided its proposed *International Power Line Crossing Regulations* into two sets of regulations, as follows:

1. *International Power Line Crossings, Construction and Abandonment Regulations*

   These regulations deal with crossings by international power lines as well as each company's responsibilities to maintain crossing records, abandon crossings, and report incidents.

2. *International Power Line Crossing Regulations*

   These regulations deal with crossings of international power lines and set out the terms and conditions under which leave of the Board to cross such power lines need not be obtained.

Since the coming into force of Bill C-23 in June, the draft regulations have been approved by the Board, subject to further examination by the Department of Justice and publication in the *Canada Gazette*.

National Energy Board Part VI Regulations

During 1990, the Board continued its review of the *National Energy Board Part VI Regulations (the Part IV Regulations)* to reflect recent changes in export regulation and changes suggested by the Standing Joint Committee on Regulatory Scrutiny, including the removal of those provisions respecting export and import reporting requirements now included in the proposed *Export and Import Reporting Regulations* (see below).

On 25 January 1990, the Board approved amendments to subsection 8(1) of the regulations to change the circumstances under which the Board can authorize the import and export of natural gas by order. The amendments have been approved by the Governor in Council and published in the *Canada Gazette* and are now in effect.

On 10 August, the Board issued for comment a draft of the proposed amendments to the *Part VI Regulations*, other than subsection 8(1), and briefing sessions were held in Ottawa and Toronto, Ontario and Calgary, Alberta to assist parties in understanding the proposed changes. The amendments will require Governor in Council approval before taking effect.

Regulations to Implement the Canadian Electricity Policy

Since the passage of Bill C-23, regulations have been drafted to implement the new *Canadian Electricity Policy*.

The draft regulations set out, among other things, information requirements for applications in respect of electricity exports and international power line facilities, terms and conditions of export and facilities permits, and the matters which the Board may consider in deciding whether to recommend that an export or facilities application be designated for a public hearing process. These regulations will replace part of the existing *Part VI Regulations* and one of the schedule to the Draft National Energy Board *Rules of Practice and Procedure*. In keeping with the government's more market-based approach to energy policy, they will result in streamlining the Board's operations and reducing the level of regulation.

In June, the Board sent out a Memorandum of Guidance advising parties of immediate changes to the Board's procedures in respect of export and international power line applications pending approval of the new regulations by the Governor in Council.

Export and Import Reporting Regulations

These proposed regulations, under subsection 129(1) of the Act, would require persons exporting oil, natural gas, or electricity, or importing natural gas under a licence or order, to provide certain information to the Board. The information is similar to that currently required by the *Part VI Regulations*. However, on the suggestion of the Standing Joint Committee on Regulatory Scrutiny, the Board decided to remove the reporting requirements from the *Part VI Regulations* and to make new regulations.

The draft regulations, which were issued for comment along with the proposed amendments to the *Part VI Regulations*, will require Governor in Council approval before taking effect.

Cost Recovery Regulations

Pursuant to the government's cost recovery initiative introduced in the May 1985 Budget, the Board completed a feasibility study on recovering the costs of regulation from companies under its jurisdiction. The study received Treasury Board's approval in principle in November 1988. Consultation with industry took place during 1989 and 1990. In September 1990, Treasury Board approved the Board's implementation proposal.

Commencing early in 1991, total costs of operating the National Energy Board will be recovered from regulated companies rather than being paid out of general government revenues.

The cost will be recovered on a broad commodity allocation basis. Costs will be allocated among the energy commodities of oil, gas and electricity on the basis of information provided by the Board's Time Reporting System. The costs allocated to oil and gas will be recovered from oil pipeline companies and gas pipeline companies, respectively on the basis of pipeline deliveries. The costs allocated to electricity will be recovered on the basis of electricity sales. Bills for one-quarter of the annual cost recovery charge will be sent to the pipeline companies and electricity exporters at the end of each quarter. The first bill will be sent out 31 March 1991.

These regulations were made following amendments to the *National Energy Board Act* made under Bill C-25.

ORGANIZATION

Person-year Allocation: 336
Budget: $25.6 million

Members of the National Energy Board

The membership of the Board as of 31 December 1990 was:

Roland Priddle	Chairman
Jean-Guy Fredette	Vice-Chairman
R. Byron Horner, Q.C.	Member
William G. Stewart	Member
A. Boyd Gilmour	Member
Anita Côté-Verhaaf	Member
Martha Musgrove	Member
Céline Bélanger	Member
Roy Illing	Member
David B. Smith	Temporary Member
Kenneth W. Vollman	Temporary Member

Céline Bélanger and Roy Illing joined the Board on 1 January 1990 for a seven-year term.

William G. Stewart was re-appointed as a Board Member for a two-year term effective 24 March 1990.

Staff

The Board's offices and branches are described below; the inside back cover of this report lists the Board's senior staff.

The **Executive Director** is the Board's senior staff member and Chief Operating Officer. His responsibilities include the overall management of the Board, the acquisition and allocation of human and financial resources, the efficiency and effectiveness of Board activities and operations and the provision of advice on such matters as the Chairman may deem appropriate.

The **Finance and Administration Branch** coordinates and administers the financial and administrative policies under which the Board operates. It provides advice and services relating to accounts processing, financial planning and budgeting, property, material, records and mail management. It also provides accounting services for the Northern Pipeline Agency.

The **Personnel Branch** provides advice and services in the areas of staffing, human resources planning, training, employment equity, official languages, classification, staff relations, safety and health, pay and benefits, conflict of interest, employee assistance, merit awards and security.

The **Planning and Review Branch** is responsible for the Board's strategic and operational planning process, program review and evaluation, internal audit program and management practices program.

The **Information Technology Branch** is responsible for computer systems services, word processing support, data processing support and telephone services. This includes consultative services on computer operations, data management, program design and development, and an advisory service on the latest data processing techniques and applications. Branch responsibilities also include the integration of information processing systems and services for the Board.

The **Director General, Energy Regulation** is responsible for the integration of all staff activities involving the regulation of energy exports and international power lines. This encompasses planning and coordinating all work affecting the regulation of international power lines and of exports of oil, gas, and electricity under Part VI of the *National Energy Board Act*, and coordinating the analysis of all matters related to energy demand and supply.

The **Economics Branch** is responsible for evaluating the economic worth to Canada of applications before the Board to licence exports and to certificate pipeline and international power line projects. The Branch develops, in collaboration with others in the Board, general approaches to energy regulation and pipeline toll and tariff structures which involve considerations of economic efficiency. The Branch is responsible for preparing detailed projections of energy demand in Canada, macro-economic projections for the long-term performance of the Canadian economy, long-term outlooks for Canadian exports of natural gas and electricity to the American market and long-term scenarios of world oil prices (these activities largely in support of the Board's *Canadian Energy Supply and Demand* and *Natural Gas Market Assessment* reports), market monitoring requirements and evaluations of export licence and facilities applications. The Branch also advises on the state of competitive conditions in energy markets to the extent required for the Board's regulatory mandate.

The **Energy Supply Branch** is responsible for advising on matters relating primarily to the supply of crude oil, natural gas and natural gas liquids. The Branch prepares both short-term and long-term projections of supplies of these energy commodities, based on its own studies and consultations with industry and other groups. The Branch also prepares estimates of established oil and gas reserves in Canada; conducts analyses of ultimate resource potentials and reserves additions rates; evaluates the supply costs and economics of resource projects; monitors developments in the energy sector, particularly the producing industry; and investigates potential new energy supply sources. The Branch undertakes these activities in support of both the Board's regulatory and advisory responsibilities. These activities are conducted in both the Board's Calgary and Ottawa offices.

The **Electric Power Branch** advises on matters relating to electricity export authorizations, international power line certification, and regulatory surveillance. The Branch prepares supply and demand forecasts for electricity that are used in dealing with electrical and other applications, and in support of the Board's *Canadian Energy Supply and Demand* report, reviews the North American market for electricity, and provides advice on matters under federal jurisdiction that relate to the production, transportation, sale, and exchange of electricity.

The **Gas and Oil Branch** provides advice to the Board on oil and gas matters including evaluation of oil and gas markets and commercial transactions, transmission, processing and distribution of commodities. The Branch is responsible for export and import regulation, monitoring, and for matters related to traffic and discrimination in service for gas and oil pipelines. The Branch collects and disseminates data on exports and imports including volumes and prices, and also prepares and supplies data on the consumption and transportation of crude oil, petroleum products, gas products and natural gas, incorporating estimates of short-term domestic and export demand and pipeline throughputs.

The **Director General, Pipeline Regulation** integrates all staff activities relating to the regulation of gas, oil, and petroleum products pipelines. This encompasses the design, construction, operation, safety, and environmental concerns specified under Part III of the *National Energy Board Act* and matters regarding traffic, tolls, and tariffs under Part IV of the *National Energy Board Act*.

The **Environment Branch** provides a lead role at the Board in maintaining the expertise and data bases necessary to ensure that the environmental implications of the Board's regulatory decisions and advisory reports are evaluated, and that the consequences of those decisions are dealt with in an environmentally sound

manner. To achieve this end, the expertise of the Branch covers a wide spectrum of disciplines, including ecology, geology, soil science, land-use planning and geography.

The **Pipeline Engineering Branch** advises on matters relating to pipeline certificates and orders issued under the *National Energy Board Act* and for the regulation of the safety of pipeline facilities under the Board's jurisdiction. The Branch is the Board's principal source of advice on technical matters with respect to the design, construction and operation of pipelines and coordinates the review of applications by pipeline companies for facilities construction. Staff in this Branch also administer certain portions of the *Canada Labour Code* relating to pipeline worker safety.

The **Financial Regulation Branch** has the primary responsibility for tolls and tariffs, financial regulatory advice and costs of transportation under specific areas of the *National Energy Board Act*. As such, its main function includes the provision of financial advice to the Board and to the hearing panel on all toll applications. It also audits the accounts of pipeline companies under the Board's jurisdiction and monitors the financial performance of pipelines on a regular basis to ensure that tolls are just and reasonable.

The **Law Branch** provides legal advice to the Board on all matters relating to the Board's powers and responsibilities, acts as Counsel for the Board at public hearings, and represents the Board in proceedings before the Federal and Supreme Courts of Canada.

The Office of the Secretary is the Board's formal contact with third parties. Thus, it receives all applications and submissions, coordinates their consideration by the Board and informs applicants and other third parties of their outcome. It is similarly responsible for scheduling the Board's hearings and makes relevant administrative arrangements for its public hearings, wherever held. In addition, the Secretary's office is responsible for the operation of the Board's library; provides media and public relations services; and handles distribution of all the Board's publications. It administers the *Access to Information Act* and *Privacy Act* and coordinates translation services with Secretary of State.

FUNCTIONS AND RESPONSIBILITIES

Responsibilities Under the National Energy Board Act

The Board has two principal responsibilities under the *National Energy Board Act*

- to regulate specific matters concerning oil, gas and electricity in the public interest, and
- to advise the government on the development and use of energy resources.

The Board has the authority to hold inquiries into any aspect of energy matters under its jurisdiction and to issue reports for the use and information of government, Parliament, and the general public.

The regulatory roles of the Board are described below.

Export Licences, Orders and Electricity Permits

The Board issues long-term authorizations for the export of oil, natural gas, and electricity. Such authorizations are normally granted following public hearings. In the case of electricity, the Board now normally issues permits not requiring public hearings. However, if the circumstances merit, the Board may recommend to the Governor in Council that an export proposal be designated for a licensing proceeding requiring a public hearing. In issuing export authorizations, the Board must satisfy itself that, among other things, the proposed export is in the Canadian public interest. The Board also issues orders for short-term exports of oil and natural gas subject to the restrictions imposed in the *National Energy Board Part VI Regulations*. In addition, the Board authorizes licences and orders for imports of natural gas.

Regulation of Pipeline Traffic, Tolls, Tariffs, and Accounting Practices

The Board regulates the traffic, tolls and tariffs of pipeline companies under federal jurisdiction to ensure that the tolls are just and reasonable and that there is no unjust discrimination in tariff or service. This involves consideration of the capital structure of a pipeline company and its operating costs and of the

necessity for a fair return on investment so that capital can be attracted as needed to maintain and to extend service. The Board audits the accounts of pipeline companies and monitors their financial performance.

Certificates of Public Convenience and Necessity for Pipelines and Permits or Certificates for Power Lines

The Board grants certificates to construct and operate interprovincial and international oil, gas and petroleum products pipelines. Before a certificate is issued the Board is required to hold a public hearing to determine whether the proposed facilities are required by the present and future public convenience and necessity. The construction and operation of international power lines are now normally authorized by permits issued by the Board without public hearings. However, the Governor in Council may, on the recommendation of the Board, order that an application for a power line be subject to a certificate proceeding requiring a public hearing.

Detailed Routing - Pipelines and Power Lines

Persons whose lands may be affected by the route of a pipeline or power line approved by the Board can present their views to the Board at a local public hearing. Their evidence is considered in the determination of the final detailed route of the line.

In the case of power lines, detailed routing matters are normally dealt with under provincial laws unless an applicant elects to have federal laws apply.

Pipeline and Power Line Orders

The Board can exempt minor pipeline facilities or minor additions to, or modifications of, existing pipeline systems. These approvals are restricted to pipelines not more than 40 kilometres long and to installations such as tanks, pumps, compressors, and meter stations. The Board may also authorize, without a public hearing, the construction and operation of international power lines not exceeding 50 kilovolts.

Pipeline Safety

The *National Energy Board Onshore Pipeline Regulations* provide for the safe design, construction, and operation of pipelines under the Board's jurisdiction. To ensure high standards of pipeline construction and operation, the Board carries out inspection programs and conducts investigations of pipeline system performance.

Pipeline Utility Crossings

The Board monitors the construction and excavation activities of contractors, pursuant to the *National Energy Board Pipeline Crossing Regulations, Part I* and *Part II* to ensure safety during construction of crossings of federally regulated pipelines.

Environmental Protection

The Board considers the environmental implications of any proposal to build and operate an oil or natural gas pipeline or international power line. Companies preparing an application to the Board are encouraged to anticipate and discuss with all levels of government, public interest groups, and affected landowners the environmental issues and concerns that the proposed project could create. Such early planning with respect to environmental matters produces a more complete application addressing the appropriate alternatives and taking into account the public's concerns.

To ensure the highest level of environmental protection, the Board welcomes interventions at hearings from local environmental and public interest groups, as well as concerned individuals. To encourage public participation, the Board often convenes the hearing in the area where construction impacts would occur.

Following the issuance of a certificate or order, the Board audits a company's construction activities and, later during the operation of the system, its routine maintenance and monitoring procedures. In this way, the Board can satisfy itself that the companies continue to protect the environment, and ensure public health and safety.

Socio-Economic Impact

As part of its facilities approval process, the Board considers local and regional social and economic concerns. The Board ensures that applicants take all reasonable steps to minimize the negative impact a project may produce and

to enhance project benefits accruing to local, regional and specific groups. This may include a pre-project socio-economic impact assessment, a review of proposed socio-economic action plans, post-certificate monitoring of the success or failure of the action plans, and an assessment of actual project impacts.

Responsibilities Under the Energy Administration Act

The Board's responsibilities under the *Energy Administration Act* relate to the collection of oil export charges. Although the charges on crude oil and bulk petroleum product exports were reduced to zero in 1985, some activity continued in 1990 in the areas of collection and write-off of outstanding assessments.

Responsibilities Under the Northern Pipeline Act

The Board's statutory responsibilities regarding the Canadian portion of the Alaska Natural Gas Transportation System relate mainly to the regulation of tolls and tariffs, the approval of pipe specifications and financing arrangements, the granting of leave to open orders, and the regulation of the operation of the line. The Board also provides to the Northern Pipeline Agency finance and personnel services as well as technical advice. Mr. K.W. Vollman, a Board Member, is the Designated Officer for the Northern Pipeline Agency.

Responsibilities under the Labour Canada Agreement

A Memorandum of Understanding has been entered into by the Board and Labour Canada, whereby certain Board inspectors have been appointed safety officers by the Minister of Labour and have assumed operational responsibilities for matters of occupational safety and health as covered in Part II of the *Canada Labour Code*. The agreement, which came into effect on 23 February 1987, excludes all pipelines under the Board's jurisdiction but excludes certain areas such as head offices and regional offices of the pipeline companies; these will continue to be the responsibility of Labour Canada inspectors.

Public Access and Participation

The Board is a court of record. With specific exceptions relating to the confidentiality of certain competitive pricing information, the Board's deliberations are conducted on the basis of information that is publicly filed and publicly available in the Board's library in Ottawa, and at its office in Calgary. For major applications and inquiries, the Board holds public hearings at which applicants and interested persons have full rights of participation in the official

language of their choice. The Board wants to ensure widespread awareness of these activities. It therefore requires that applicants publish notices of its hearings in newspapers so that interested parties will know about them in advance and can therefore raise concerns and seek information.

The Board's Reasons for Decision on applications are issued as public documents.

In addition, the Board issues a quarterly *Regulatory Agenda* on matters coming before the Board as well as information bulletins and news releases on a variety of matters pertaining to Board activities.

Implementation of Board Decisions

When the Board is prepared to grant a certificate for a pipeline, or to issue a licence for the export or import of natural gas or the long-term export of oil, it advises the Governor in Council through the Minister of Energy, Mines and Resources. If a certificate is approved by the Governor in Council, it is then issued by the Board. In the case of long-term export or import applications, licences issued by the Board go into effect upon approval by the Governor in Council.

Permits issued by the Board without public hearings for electricity exports or a power line are not subject to Governor in Council approval. However, the Governor in Council may, up to 45 days following the issuance of a permit by the Board, issue an order revoking the permit and requiring that a proposed export or international power line be designated for a licensing or a certificating process.

A decision of the Board to refuse an application is not subject to referral to the Governor in Council, except in the case of energy exports to the United States where certain provisions of the Free Trade Agreement would apply as a consequence of the refusal. The Board's decisions on tolls and tariffs are made without reference to the Governor in Council, as are the majority of the Board's day-to-day decisions.

Reviews and Appeals of Board Decisions

The Board may review, rescind, or change any of its orders or decisions, or rehear any application before deciding on it. It may also change a previously issued certificate or licence, but no such change is effective until approved by the Governor in Council.

Parties may apply to the Board requesting that a decision be reviewed.

A decision may be appealed to the Federal Court of Appeal provided the appeal is based on a point of law or jurisdiction.

Awarding of Costs

Except in detailed route hearings, the Board does not have the power to award costs to participants in its proceedings.

In the case of detailed route hearings, the Board may establish the appropriate level of compensation to be paid to a landowner for costs associated with participation in the hearing.

REASONS FOR DECISIONS AND OTHER MAJOR DOCUMENTS ISSUED IN 1990

Reasons for Decisions

1. WESTCOAST ENERGY INC. - Application dated 5 July 1989 for new tolls pursuant to Part IV of the *National Energy Board Act* - (Hearing Order RH-2-89) - January 1990

2. TRANSCANADA PIPELINES LIMITED - Information on gas supply required to be provided by TransCanada PipeLines Limited in support of its 1991/92 and 1992/93 facilities application - (Hearing Order GHW-3-89) - January 1990

3. TRANSCANADA PIPELINES LIMITED - Application dated 26 July 1989 for tolls pursuant to Part IV of the *National Energy Board Act* - (Hearing Order RH-3-89) - March 1990

4. REVIEW OF CERTAIN ASPECTS OF THE MARKET-BASED PROCEDURE pursuant to section 21 of the *National Energy Board Act* - (Hearing Order GHW-4-89) - March 1990

5. DIRECT ENERGY MARKETING LIMITED, INDECK GAS SUPPLY CORPORATION, SHELL CANADA LIMITED AND WESTERN GAS MARKETING LIMITED, AS AGENT FOR TRANSCANADA PIPELINES LIMITED - Review of applications for gas export licences pursuant to section 21 of the *National Energy Board Act* - (Hearing Order GH-1-90) - June 1990

6. ESSO RESOURCES CANADA LIMITED - Application dated 27 November 1989 for a change, alteration, or variation of Licence GL-82 under Part I of the *National Energy Board Act* and CANSTATES GAS MARKETING AND TRANSCO ENERGY MARKETING COMPANY, FSC RESOURCES LIMITED, RAMARRO RESOURCES INC., VECTOR ENERGY INC., WESTERN GAS MARKETING LIMITED - Applications under Part VI of the *National Energy Board Act* to export natural gas - (Hearing Order GH-6-89) - July 1990

7. NORTH CANADIAN OILS LIMITED - Application dated 24 November 1989 for gas export licences pursuant to Part VI of the *National Energy Board Act* - (Hearing Order GH-2-90) - July 1990

8. HYDRO-QUÉBEC - Two applications for authorizations to export electricity pursuant to Part VI of the *National Energy Board Act* - (Hearing Order EH-3-89) - August 1990

9. WESTCOAST ENERGY INC. - Application dated 6 June 1990 for a certificate under Part III of the *National Energy Board Act* for the McMahon Plant Expansion Project - (Hearing Order GH-5-90) - September 1990

10. INTERHOME ENERGY INC. which carries on its pipeline operations as INTERPROVINCIAL PIPE LINE COMPANY, A DIVISION OF INTERHOME ENERGY INC. - Review of Recommendation 5.9: Integrity of existing pipelines, of the National Energy Board Report MH-2-85 dated June 1986 - (Hearing Order OHW-1-89) - September 1990

11. HUSKY OIL OPERATIONS LTD., MOBIL OIL CANADA, LTD., L & J ENERGY SYSTEMS, INC. - Applications under Part VI of the *National Energy Board Act* for licences authorizing the export of natural gas - (Hearing Order GH-3-90) - October 1990

12. WESTCOAST ENERGY INC. - Westcoast's Raw Gas Transmission Expansion Policy regarding toll surcharge - 19 October 1990

13. TRANSCANADA PIPELINES LIMITED - Application dated 29 June 1989, as amended, for a certificate under Part III of the *National Energy Board Act* for 1991 and 1992 facilities- (Hearing Order GH-5-89 Volume I - Tolling and Economic Feasibility) - November 1990

14. TRANSCANADA PIPELINES LIMITED - Application dated 29 June 1989, as amended, for a certificate under Part III of the *National Energy Board Act* for 1991 and 1992 facilities- (Hearing Order GH-5-89 Volume II - Partial Facilities) - November 1990

15. WESTCOAST ENERGY INC. - Application dated 7 September 1990 for a certificate under Part III of the *National Energy Board Act* for the Hoseitl Project and an application for an order approving a toll surcharge for raw gas transmission service through the proposed facilities pursuant to Part IV (Hearing Order GH-8-90) - November 1990

16. **Environmental Screenings Documents**

GH-2-90 - Natural Gas Exports

NORTH CANADIAN OILS LIMITED - Application dated 24 November 1989

GH-3-90 - Natural Gas Exports

MOBIL OIL CANADA, LTD. - Application dated 21 December 1989, amended 22 March 1990, 29 May 1990 and 20 July 1990

HUSKY OIL OPERATIONS LTD. - Application dated 7 March 1990

L & J ENERGY SYSTEMS, INC. - Application dated 26 March 1990

GH-5-90 - McMahon Plant Expansion

WESTCOAST ENERGY INC. - Application dated 6 June 1990

GH-5-89 - Facilities, Section 71 Applications for the Transportation of Natural Gas and Natural Gas Exports

Facilities

TRANSCANADA PIPELINES LIMITED - Application dated 15 December 1989

Section 71 Applications for Transportation of Gas

FSC RESOURCES LIMITED - Application dated 1 December 1989

INDECK GAS SUPPLY CORPORATION (ILLION)- Application dated 21 December 1989

ROCHESTER GAS AND ELECTRIC CORPORATION - Application dated 15 January 1990

Natural Gas Exports

CANADIAN OCCIDENTAL PETROLEUM LIMITED - Application dated 9 August 1989

ESSO RESOURCES CANADA LIMITED - Application dated 27 July 1989

ENSERCH DEVELOPMENT CORPORATION, on behalf of ENCOGEN FOUR PARTNERS, LIMITED PARTNERSHIP - Application dated 6 November 1989

INDECK GAS SUPPLY CORPORATION (CORINTH) - Application dated 30 November 1989

INDECK GAS SUPPLY CORPORATION (ILLION) - Application dated 30 November 1989

FULTON COGENERATION ASSOCIATES - Application dated 3 November 1989

FSC RESOURCES LIMITED - Application dated 30 November 1989

JMC SELKIRK, INC. - Application dated 11 August 1989

KAMINE CARTHAGE COGENERATION COMPANY, INC. - Application dated 31 July 1989

KAMINE SOUTH GLENS FALLS COGENERATION COMPANY and BETA SOUTH GLENS FALLS, INC. - Application dated 31 July 1989

NEW ENGLAND POWER COMPANY - Application dated 4 August 1989

PAWTUCKET POWER ASSOCIATES LIMITED PARTNERSHIP - Application dated 1 August 1989

PROGAS LIMITED - Application dated 8 August 1989

UNIGAS CORPORATION - Application dated 22 January 1989

WESTERN GAS MARKETING LIMITED - Application dated 8 August 1989

GHW-1-90 - Natural Gas Exports

AMOCO CANADA PETROLEUM COMPANY LTD. and CONSOLIDATED EDISON OF NEW YORK - Application dated 31 January 1989

ICG UTILITIES (ONTARIO) LTD. - Application dated 10 February 1989

PROGAS LIMITED - Application dated 15 November 1988

WESTERN GAS MARKETING LIMITED - Application dated 15 February 1989

GHW-3-90 - Natural Gas Exports

CANSTATES GAS MARKETING and TRANSCO ENERGY MARKETING COMPANY - Application dated 31 August 1990

ESSO RESOURCES CANADA LIMITED - Application dated 27 November 1990

FSC RESOURCES LIMITED - Application dated 15 February 1989

RAMARRO RESOURCES INC. - Application dated 28 July 1989

VECTOR ENERGY INC. - Application dated 4 July 1989

WESTERN GAS MARKETING LIMITED - Application dated 25 September 1989

GHW-4-90 - Natural Gas Exports

DIRECT ENERGY MARKETING LIMITED - Application dated 29 March 1990

INDECK GAS SUPPLY CORPORATION - Application dated 30 March 1990

SHELL CANADA LIMITED - Application dated 22 March 1990

WESTERN GAS MARKETING LIMITED, as agent for TransCanada PipeLines Limited - Application dated 2 March 1990

OTHER MAJOR DOCUMENTS

1. National Energy Board 1989 Annual Report - March 1990
2. Exports of Petroleum Products 1989 - Staff Report - April 1990
3. Exports of Crude Oil in 1989 - Staff Report - May 1990
4. New Office Consolidation of the *National Energy Board Act* - 31 May 1990
5. Annual Report Pursuant to Access to *Information Act* and *Privacy Act* (1 April 1989 - 31 March 1990) - June 1990
6. Excavation and Construction Near Pipelines - June 1990
7. Memorandum of Guidance to Interested Parties concerning full implementation of the September 1988 Canadian Electricity Policy - 22 June 1990
8. Canadian Electric Utilities - Analysis of Generation and Trends 1988 - July 1990
9. Memorandum of Guidance Concerning Early Public Notification of Proposed Applications - 17 July 1990
10. Workshop on Benefit-Cost Analysis and Export Impact Assessment (November 1989) - issued August 1990
11. Memorandum of Guidance - Regulation of Group 2 Companies - 22 November 1990 (Update of August 1985 Version)

Copies of the Board's Reasons for Decisions and other reports are available on request from:

Regulatory Support Office
National Energy Board
1064 - 473 Albert Street
Ottawa, Ontario
K1A 0E5
Canada
(613) 998-7204

and

National Energy Board
4500 16th Avenue N.W.
Calgary, Alberta
T3B 0M6
Canada
(403) 292-6700

COMPANIES UNDER NATIONAL ENERGY BOARD JURISDICTION

The following is a list of pipeline companies [a] which own and/or operate interprovincial or international pipelines under the Board's jurisdiction, companies that have been granted licences to export natural gas, and electric utilities that have been granted electricity export licences by the Board. References to the following companies in this report use the abbreviations indicated in brackets.

Pipelines

Group 1 Gas

Alberta Natural Gas Company Ltd (Alberta Natural Gas)
Foothills Pipe Lines Ltd. (Foothills)
Trans Québec & Maritimes Pipeline Inc. (TQM)
TransCanada PipeLines Limited (TransCanada)
Westcoast Energy Inc. (Westcoast)

Group 1 Oil And Products

Cochin Pipe Lines Ltd. (Cochin)
Interprovincial Pipe Line Company,
a division of Interhome Energy Inc. (Interprovincial)
Interprovincial Pipe Line (NW) Ltd. (Interprovincial (NW))
Trans Mountain Pipe Line Company Ltd. (Trans Mountain)
Trans-Northern Pipelines Inc. (Trans-Northern)

(a) The pipeline companies have been divided into two groups, Group 1 consists of the ten major pipeline companies which are audited by the Board on a regular basis and whose operating results are continuously monitored by the Board. The 41 companies under the Board's jurisdiction that are not included in Group 1 have been designated as Group 2 companies.

Group 2 Gas

Amoco Canada Petroleum Company Ltd. (Amoco) (Inactive)
Amoco Canada Resources Limited (Amoco Canada) (Inactive)
A.P.R. Pipeline Company Ltd. (A.P.R. Pipeline)
Bonanza Oil and Gas Ltd. (Bonanza)
BP Resources Canada Limited (BP)
Canadian Hunter Exploration Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Champion Pipe Line Corporation Limited (Champion)
Consumers' Gas (Canada) Limited (Consumers' Gas)
ICG Transmission Holdings Ltd. (ICG)
Many Islands Pipe Lines (Canada) Limited (Many Islands)
Mid-Continent Pipelines Limited (Mid-Continent)
Minell Pipeline Ltd. (Minell)
Murphy Oil Company Ltd. (Murphy Oil) (Inactive)
167496 Canada Ltd. (167496 Canada)
Niagara Gas Transmission Limited (Niagara Gas)
Novacorp International Pipelines Ltd. (Novacorp)
Peace River Transmission Company Limited (Peace River)
Poco Petroleums Ltd. (Poco)
Saskatchewan Power Corporation (Saskatchewan Power)
SCL Quebec Pipeline Inc. (SCL)
St. Clair Pipelines Ltd. (St. Clair Pipelines)
Union Gas Limited (Union Gas)

Group 2 Oil And Products

Aurora Pipe Line Company (Aurora)
Dome Kerrobert Pipeline Ltd. and Pan Canadian Kerrobert Pipeline Ltd. (Dome Kerrobert and Pan Canadian)
Dome NGL Pipeline Ltd. (Dome NGL)
Dome NGL Pipeline Ltd. and Amoco Canada Petroleum Company Ltd. (Dome NGL and Amoco)
Esso Resources Canada Limited (Esso)
Manito Pipelines Ltd. (Manito)
Montreal Pipe Line Limited (Montreal Pipe Line)
Mont Resources Limited (Mont Resources)
Murphy Oil Company Ltd. (Murphy Oil)
Northwest Transmission Company Limited (Northwest Transmission)
Petroleum Transmission Company (Petroleum Transmission)
Polysar Hydrocarbons Limited (Polysar)
Pouce Coupé Pipe Line Ltd. (Pouce Coupé)
Shell Canada Products Limited (Shell)
Sun Pipe Line Company (Sun)
Wascana Pipe Line Ltd. (Wascana)
Westspur Pipe Line Company (1985) Inc. (Westspur)
Windsor Storage Facility Joint Venture (Windsor Storage)
Yukon Pipelines Limited (Yukon Pipelines)

Gas Export Licence Holders

Alberta and Southern Gas Co. Ltd. (Alberta and Southern)
Alberta Northeast Gas Ltd. & ABC Oil and Gas Company (ANE & ABC)[a]
Alberta Northeast Gas Ltd. & ATCOR Ltd. (ANE & ATCOR)[a]
Alberta Northeast Gas Ltd. & ProGas Limited (ANE & ProGas)[a]
Alberta Northeast Gas Ltd. & TransCanada PipeLines Limited (ANE & TransCanada)[a]
Amoco Canada Petroleum Company Ltd. (Amoco)
Amoco Canada Resources Limited (Amoco Resources)
BC Gas Inc. (BC Gas)[a]
Canadian Hunter Exploration Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
CanStates Gas Marketing and Transco Energy Marketing Company (CanStates/TEMCO)[a]
Canterra Energy Ltd. (Canterra)
Direct Energy Marketing Limited (Direct Energy)
Esso Resources Canada Limited (Esso)
FSC Resource Limited (FSC)
Gulf Canada Resources Limited (Gulf)
Husky Oil Operations Ltd. (Husky)
ICG Transmission Holdings Ltd. (ICG Transmission)
ICG Utilities (Ontario) Ltd.(ICG(Ontario)) [a]
Indeck Gas Supply Corporation (Indeck)
Kanngaz Producers Ltd. (Kanngaz)
L & J Energy Systems, Inc. (L & J Energy)
Many Islands Natural Gas (Canada) Limited (Many Islands)
Mobil Oil Canada, Ltd. (Mobil)
Niagara Gas Transmission Limited (Niagara Gas)
Norcen Energy Resources Limited (Norcen)
North Canadian Oils Limited (North Canadian)
Pan-Alberta Gas Ltd. (Pan-Alberta)
Poco Petroleums Ltd. (Poco)
ProGas Limited (ProGas)
Ramaro Resources Inc. (Ramaro)
Shell Canada Limited (Shell Canada)
TransCanada PipeLines Limited (TransCanada)
Union Gas Limited (Union Gas)
Vector Energy Inc. (Vector)
Westcoast Energy Inc. (Westcoast)
Western Gas Marketing Limited (Western Gas Marketing)

(a) Joint licence holders
(b) Export for re-import

Electric Power Licencees, Certificate and Permit Holders [a]

Boise Cascade Canada Ltd. (Boise Cascade)
British Columbia Hydro and Power Authority (B.C. Hydro)
Canadian Niagara Power Company Limited (Canadian Niagara)
The Canadian Transit Company (Canadian Transit)
Cedars Rapids Transmission Company, Limited (Cedars Rapids)
Cominco Ltd. (Cominco)
Cornwall Electric (Cornwall Electric)[a]
The Detroit and Windsor Subway Company (Detroit and Windsor)
Fraser Inc. (Fraser)
Hydro-Québec (Hydro-Québec)
Maine and New Brunswick Electrical Power Company, Limited
(Maine and New Brunswick)
The Manitoba Hydro-Electric Board (Manitoba Hydro)
The New Brunswick Electric Power Commission (New Brunswick Power)
Ontario Hydro (Ontario Hydro)
Saskatchewan Power Corporation (Sask Power)
West Kootenay Power and Light Company, Limited (West Kootenay)

(a) All licencees except Cornwall Electric export over their own facilities for which Board certificates have been issued. Cornwall Electric exports its power over the facilities of Cedars Rapids.

METRIC CONVERSION TABLE

The National Energy Board uses the International System of Units (SI). The energy units most commonly referred to in this report are the gigajoule (GJ) and the petajoule (PJ). A 50-litre gasoline fill-up contains about one gigajoule of energy. A petajoule is one million gigajoules. On average, a city the size of Toronto uses a petajoule of energy for all uses (heat, light, transportation, etc.) about every 15 hours.

The following conversion table is provided for the convenience of readers who may be more familiar with the Imperial System.

Approximate Conversion Factor

1 metre (m)	= 3.28 feet
1 kilometre (km)	= 0.62 mile
1 millimetre (mm)	= 0.039 inch
1 cubic metre (m^3) of oil	= 6.3 barrels
1 cubic metre (m^3) of natural gas	= 35.3 cubic feet
1 litre (L)	= 0.22 Imperial gallon
1 kilogram (kg)	= 2.20 pounds
1 gigajoule (GJ)	= 0.95 thousand cubic feet of natural gas at 1000 Btu per cubic foot or 0.165 barrels of oil, or 0.28 megawatt hours of electricity
1 petajoule (PJ)	= one million gigajoules

Abbreviations

gigajoule (GJ)	= 10^9J
terajoule (TJ)	= 10^{12}J
petajoule (PJ)	= 10^{15}J
exajoule (EJ)	= 10^{18}J
kilowatt (KW)	= 10^3 watts
megawatt (MW)	= 10^6 KW
megawatt hour (MW.h)	= 10^6 KW.h
gigawatt hour (GW.h)	= 10^9 KW.h
terawatt hour (TW.h)	= 10^{12} KW.h

APPENDICES

APPENDICES

Energy Overview

1. Canadian Energy Consumption
2. Crude Oil and Equivalent Supply and Disposition
3. Natural Gas Supply and Disposition
4. Electricity Generation and Disposition

Oil

1. Certificates Issued During 1990 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length
2. Orders Issued During 1990 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length
3. Orders Issued During 1990 Approving Modifications and Additions to Existing Oil Pipeline Facilities
4. Export of Petroleum Products - 1990
5. Exports of Canadian Crude Oil and Equivalent - 1989 and 1990
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1. Certificates Issued During 1990 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length
2. Orders Issued During 1990 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length
3. Orders Issued During 1990 Approving Modifications and Additions to Existing Gas Pipeline Facilities
4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1990

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6. Licences and Long-Term Orders to Export and /or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1990

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8. Imports of Natural Gas

9. Exports of Propane, Butanes, Ethane and Ethylene under Licences and Orders

10. Imports of Propane, Butanes, Ethane and Ethylene under Licences and Orders

11. Total Net Exports of Propane and Butanes

12. Natural Gas Volumes Authorized for Export

Electricity

1. Certificates Issued During 1990 Approving International Power Lines

2. Orders Issued During 1990 Relating to International Power Lines

3. Licences Issued During 1990 Relating to the Export of Electricity

4. Orders Issued During 1990 Relating to the Export of Electricity

5. Exports

6. Electricity Trade Between Canada and the United States

7. Electricity Trade Between the United States and Canada

Financial Regulation

1. Financial Information - Group 1 Oil Pipeline Companies

2. Financial Information - Group 1 Gas Pipeline Companies

Energy Overview

1. Canadian Energy Consumption(a) (Petajoules)

	1986	1987	1988	1989	1990(e)
Petroleum (b)	3133.5	3218.2	3369.5	3528.3	3442.3
Natural Gas (c)	2144.7	2159.2	2372.3	2526.6	2401.5
Hydroelectricity (d)	1110.7	1130.5	1096.4	1035.5	1062.0
Nuclear (d) (f)	841.6	905.3	958.9	937.7	872.7
Coal	1040.0	1117.7	1200.3	1197.8	1125.6
Renewable and Other	543.9	554.2	553.5	543.2	530.7
TOTAL FOR CANADA	8814.4	9085.1	9550.9	9769.1	9434.9

a - Includes non-energy use, own use, and conversions and includes fuel for electricity export.
b - Includes LPGs.
c - Excludes reprocessing shrinkage and includes ethane, reprocessing fuel and fuel used for bitumen production.
d - Hydro and nuclear are converted at 3.6 PJ/TW.h. and 12.1 PJ/TW.h. respectively.

If the energy were converted using a heat content of 10.5 petajoules per terawatt hour, a conversion factor which estimates the amount of primary energy associated with hydro and nuclear electricity based on the amount which would be required if fossil fuels were used, the amount would be:

	1986	1987	1988	1989	1990(e)
Hydroelectricity and Nuclear	3970.0	4082.9	4029.9	3833.8	3854.8

e - Estimate.
f - Includes energy used to produce steam.

Energy Overview

2. Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)

	1986	1987	1988	1989	1990 (e)
Supply					
Canadian Production (a)	249.0	259.6	272.6	264.2	261.3
Imports (b)	56.6	64.7	71.7	77.3	84.0
Total Supply (d)	305.6	324.3	344.3	341.5	345.3
Disposition					
Domestic (b)	216.7	226.5	238.3	249.2	252.7
Exports (c)	93.6	99.6	112.8	102.9	103.4
Total Disposition (d)	310.3	326.1	351.1	352.1	356.1

a - Source: NEB.
b - Source: NEB Form 153 - Refinery Receipts.
c - Source: NEB Form 306 - Crude Oil Exports.
d - Total Supply does not equal total disposition due to inventory changes, etc.
e - Estimate.

Energy Overview

3. Natural Gas Supply and Disposition (Billions of Cubic Metres at 101.325 KPa and 15 Celsius)

	1986	1987	1988	1989	1990(e)
Net Sales in Canada	48.8	47.8	52.7	56.9	54.3
Other Uses in Canada (a)	2.5	2.1	2.9	2.8	2.5
Imports	-0.3	-0.1	-0.6	-1.2	-0.7
Exports	21.1	28.0	35.9	37.9	40.7
Total Deliveries of Canadian Gas (b)	72.1	77.8	90.9	96.4	96.9
Marketable Gas Production (b)	74.9	80.9	93.9	98.1	98.1

a - Includes pipeline fuel and losses and other deliveries, less inventory changes.
b - Total deliveries includes synthetic natural gas but excludes reprocessing shrinkage and reprocessing fuel which are included in marketable gas production.
e - Estimate.

Energy Overview

4. Electricity Generation and Disposition (Terawatt Hours)

	1986	1987	1988	1989	1990
Total Generation	457.2	483.2	490.6	482.7	470.0 (p)
Imports (a)	0.2	0.5	2.8	8.7	15.5
Total Supply	457.4	483.7	493.4	491.4	485.5 (p)
Demand	422.1	438.3	463.7	472.9	469.0 (p)
Exports (a)	35.3	45.4	29.7	18.5	16.5

a - Excludes exchanges between Canada and the United States.
p - Preliminary.

Oil

1. Certificates Issued During 1990 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were issued in 1990.

Oil

2. Orders Issued During 1990 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

No Exemption Orders (XO) were issued in 1990.

Oil

3. Orders Issued During 1990 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Amoco Canada Petroleum Company Ltd.	XOM-21-90	90-01-01	Windsor Pipeline Additions and Inlet Filter	160 000
Cochin Pipe Lines Ltd.	XOM-8-90	90-05-07	Scraper Trap and Pump Station Modifications	114 000
Dome NGL Pipeline Ltd.	XOM-3-90	90-02-08	Block Valve Installation	9 000
	XOM-6-90	90-05-03	Sending and Receiving Trap Installation	45 000
	XOM-20-90	90-10-25	Pump Station Modifications	250 000
Interprovincial Pipe Line Company a division of Interhome Energy Inc.	XOM-1-90	90-01-17	Pump Station Improvements and Other Acquisitions	15 836 700
	XOM-4-90	90-04-12	Replacements and Sleeves	4 676 100
	XOM-10-90	90-05-24	Pump Station, Building Upgrades and Equipment Replacement	321 200
	XOM-15-90	90-12-13	Pump Station, Tankage and Meter Station Modifications, Building and Equipment Enhancement	60 797 300
	XOM-16-90	90-12-13	Pump and Meter Station Modifications and Equipment Enhancement	10 871 000
	XOM-19-90	90-11-25	Pipe Replacements	458 000

Oil

3. (Cont'd) Orders Issued During 1990 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Interprovincial Pipe Line (NW) Ltd.	XOM-9-90	90-05-17	Norman Wells Efficiency Enhancement Program	1 144 000
	XOM-13-90	90-09-27	Duplex Housing Unit Reconstruction	523 600
	XOM-22-90	90-11-15	Replacements and Modifications	1 533 200
Petroleum Transmission Company	XOM-2-90	90-02-01	Pipeline Integrity Program and Meter Prover	1 328 000
Trans Mountain Pipe Line Company Ltd.	XOM-5-90	90-04-12	Pipe Relocation	NIL
	XOM-12-90	90-07-25	Pipe Replacement	300 000
	XOM-14-90	90-08-16	Pipe Relocation	355 300
	XOM-17-90	90-08-24	Emergency Mainline Cutout	250 000
	XOM-18-90	90-10-19	Pipe Relocation	70 000
	XOM-23-90	90-12-20	Trunk and Feeder Lines, Station Equipment and Miscellaneous Improvements	17 684 000
Trans-Northern Pipelines Inc.	XOM-7-90	90-05-03	Pump Stations, Equipment Buildings Upgrade and Replacement	3 291 000
	XOM-11-90	90-07-19	Pipe Section Relocation	42 000
	XOM-24-90	90-12-31	Pipeline Replacement in Shell Canada Refinery	5 000

Oil

4. Exports of Petroleum Products - 1990 (Cubic Metres)

Month	Motor Gasoline	Middle Distillate	Heavy Fuel Oil	Aviation Turbine Fuel	Partially Processed Oil	Total (a)
January	339 315	399 080	252 391	71 907	36 552	1 099 245
February	200 323	315 349	114 180	47 721	77 930	755 503
March	274 547	341 626	128 072	76 455	50 289	870 988
April	370 980	426 573	148 269	76 601	47 672	1 070 095
May	398 004	394 706	222 139	77 209	68 543	1 160 600
June	384 694	309 246	144 044	62 857	59 966	960 805
July	247 896	544 071	177 581	102 526	62 986	1 135 060
August	323 475	341 280	186 903	98 998	28 124	978 779
September	401 707	639 726	209 032	133 514	50 437	1 434 416
October	324 855	391 201	234 893	96 968	13 865	1 061 782
November	321 544	262 078	303 766	84 485	37 400	1 009 273
December (b)	265 500	345 200	205 600	76 100	32 800	925 200
Total (m^3)	**3 852 839**	**4 710 134**	**2 326 869**	**1 005 340**	**566 564**	**12 461 745**
m^3/d	**10 556**	**12 904**	**6 375**	**2 754**	**1 552**	**34 142**

a - Excludes propane, butane, lubricants, greases, asphalt, petrochemicals etc.
b - Estimate

Oil

5. Exports of Canadian Crude and Equivalent - 1989 and 1990 (Cubic Metres)

	1989		1990	
	Total	Daily Average	Total	Daily Average
Amoco Production Company	4 068 376	11 146	4 536 855	12 430
Ashland Oil Inc.	1 439 424	3 944	1 768 717	4 846
BP Oil	102 216	280	257 515	706
Cenex	1 218 951	3 340	1 113 299	3 050
Chinese Petroleum Corporation	118 050	323	39 713	109
Clark Oil & Refining Corporation	2 912 773	7 980	2 174 418	5 957
Conoco Inc.	2 095 581	5 741	2 426 779	6 649
Crystal Refining	29 168	80	41 042	112
Exxon Company, U.S.A.	1 202 665	3 295	1 274 361	3 491
Frontier Oil and Refining Co.	82 460	226	-	-
Koch Refining Company	8 957 267	24 540	9 131 432	25 018
Laketon Refining Corp.	389 926	1 068	332 271	910
Marathon Petroleum Company	512 466	1 404	722 546	1 980
Mobil Oil Corporation	3 922 347	10 746	5 135 482	14 070
Montana Refining Company	247 532	678	276 576	758
Murphy Oil U.S.A. Inc.	977 323	2 678	1 017 41[illegible]	2 787
Pecten Trading Company	26 927	74	2[illegible]	81
Shell Oil Company	743 729	2 038	282 593	774
Sun Refining and Marketing Co.	2 594 849	7 109	2 572 982	7 049
Texaco U.S.A.	109 809	301	36 978	101
Tosco Corporation	18 305	50	-	-
Total Petroleum, Inc.	231 656	635	211 478	579
Union Oil Company of California	2 125 446	5 823	1 088	3
United Refining Company	3 151 538	8 634	3 187 512	8 733
Uno-Ven Company	-	-	881 920	2 416
U.S. Oil & Refining Co.	226 563	621	277 280	760
Others	42 343	116	-	-
TOTAL	**37 547 690**	**102 870**	**37 729 825**	**103 369**

Oil

6. Exports of Canadian Crude and Equivalent (Cubic metres per day)

	1986	1987	1988	1989	1990
Light Crude Oil and Equivalent	41 281	44 213	50 214	47 136	44 465
Heavy Crude Oil	52 301	55 357	62 565	55 734	58 904
Total	**93 582**	**99 570**	**112 778**	**102 870**	**103 369**

Gas

1. Certificates Issued During 1990 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

Applicant	Certificate No.	Issued	Facilities	Estimated Cost ($)
TransCanada Pipelines Limited	GC-77	90-03-30	407-km loop and pipeline, 5 compressor units, 4 meter stations, Manitoba, Saskatchewan, Ontario and Quebec	593 000 000
	GC-78	90-11-28	396-km loop, 2 compressor relocations, Manitoba, Saskatchewan, Ontario	546 000 000
Westcoast Energy Inc.	GC-79	90-12-21	45-km Hossitl Pipeline, British Columbia	11 000 000

Gas

2. Orders Issued During 1990 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
BP Resources Canada Limited	XG-7-90	90-07-12	2-km, 114-mm Pipeline, Alberta, British Columbia	135 000
Canadian Hunter Exploration Ltd.	XG-14-90	90-12-13	Three Interprovincial Pipelines, Alberta	458 200
Many Islands Pipe Line (Canada) Limited	XG-15-90	90-12-27	54-m, 219-mm Pipeline Alberta-Saskatchewan	13 000
TransCanada PipeLines Limited	XG-3-90	90-04-20	Exemption from Sections 31 and 33 of the Act (GC-77)	NIL
	XG-4-90	90-06-28	3.3-km, 1219-mm loop, Saskatchewan	4 000 000
	XG-5-90	90-05-29	Three 14-MW Compressors, Ontario	62 500 000
	XG-9-90	90-07-05	Beamsville Meter Station, Ontario	143 000
	XG-13-90	90-11-29	Exemption from Sections 31 and 33 of the Act (GC-78)	NIL
Westcoast Energy Inc.	XG-1-90	90-01-15	Pesh Pipeline, British Columbia	4 874 000
	XG-2-90	90-03-01	Flatrock Creek Meter Station, British Columbia	170 000
	XG-6-90	90-06-21	Buckinghorse Meter Station, British Columbia	815 000

Gas

2. (Cont'd) Orders Issued During 1990 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
	XG-8-90	90-07-19	406-mm South Sukunka Pipeline, British Columbia	6 300 000
	XG-10-90	90-08-02	Huntingdon Meter Station Modifications and 300-m, 406-mm Pipeline, British Columbia	310 000
	XG-11-90	90-09-13	McMahon Plant Expansion, British Columbia	107 870 000
167496 Canada Limited	XG-12-90	90-11-08	3.4-km, 168-mm Pipeline, Saskatchewan	2 060

Gas

3. Orders Issued During 1990 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
Alberta Natural Gas Company Ltd.	XGM-1-90	90-02-08	Miscellaneous Projects and Station 2A Compressor Replacement	15 600 000
Foothills Pipe Lines Ltd.	XGM-3-90	90-02-22	Additions, Installation and Modifications	1 279 600
	XGM-21-90	90-09-13	New Scraper Trap and Existing Trap Relocations	1 900 000
ICG Transmission Holdings Ltd.	XGM-6-90	90-04-12	Two Secondary Regulating Stations	129 400
	XGM-12-90	90-06-14	Town Border Station Installation	20 300
	XGM-18-90	90-08-09	Primary Regulator Upgrade and Reconstruction	160 000
Many Islands Pipe Lines (Canada) Limited	XGM-14-90	90-06-14	Tap-off on Esther-Smiley Pipeline	10 500
Minell Pipeline Ltd.	XGM-4-90	90-03-15	Control Valve Installation	31 000
Niagara Gas Transmission Limited	XGM-22-90	90-09-27	St. Lawrence Gate Station Modifications	58 000
Peace River Transmission Company Limited	XGM-23-90	90-10-05	Sales Tap	2 000
	XGM-28-90	90-11-30	Pouce Coupé Crossing Replacement	25 000
TransCanada PipeLines Limited	XGM-2-90	90-02-15	Compressor Station Modifications	3 486 000
	XGM-7-90	90-04-25	Pipe Replacements, Compressor and Meter Station Modifications	4 300 000
	XGM-9-90	90-04-20	Axil Conversion, Piping, Plant Spare and Standby Plant	10 044 000
	XGM-13-90	90-05-03	Pipe Replacement	74 400
	XGM-16-90	90-07-12	Pipe Replacement and 350-m Line Pipe Lowering	854 000

Gas

3. (Cont'd) Orders Issued During 1990 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost ($)
	XGM-24-90	90-11-08	Two Portable Compressors	11 000 000
	XGM-29-90	90-12-14	Corbyville Meter Station Upgrade	37 000
Trans Québec & Maritimes Pipeline Inc.	XGM-5-90	90-03-29	Pointe-du-Lac Receipt and Delivery Point	1 176 000
	XGM-8-90	90-04-12	Repentigny Maintenance Building	600 000
	XGM-17-90	90-08-02	General Plant Additions	155 000
	XGM-19-90	90-08-16	Lanoraie Sales Tap	13 900
	XGM-27-90	90-11-26	Deschambault Delivery Point	19 500
Westcoast Energy Inc.	XGM-10-90	90-05-03	Pine Pass Mainline Upgrade	3 400 000
	XGM-11-90	90-05-31	Installation, Upgrades, Replacements and Equipment Improvements	5 157 000
	XGM-15-90	90-07-09	Revetment	1 254 000
	XGM-20-90	90-09-06	Pipe Replacements, Modifications, Installation and Equipment Improvements	6 637 000
	XGM-25-90	90-12-06	Compressor Stations, Plant Modifications and Replacement	638 000
	XGM-26-90	90-12-06	Pipe Replacements, Modifications, Installation and Equipment Improvements	36 000 000

Gas

4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1990

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Alberta and Southern Gas Co. Ltd.	GL-99	Kingsgate, BC.	1986-12-18	1987-10-31	31 897.2	9 340.9	77 626.5
			1987-11-01	1994-10-31	31 897.2	10 580.4	
	GL-111	Kingsgate, BC.	1994-11-01	2005-10-31	31 900.0	10 580.5	116 385.0
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	GL-105	Iroquois, Ont.	1988-11-01	2003-10-31	495.7	180.9	2 714.0
Alberta Northeast Gas Ltd. and ATCOR Ltd.	GL-104	Iroquois, Ont.	1988-11-01	2003-10-31	991.5	361.9	5 428.0
Alberta Northeast Gas Ltd. and ProGas Limited	GL-103	Iroquois, Ont.	1988-11-01	2003-10-31	1 869.6	682.4	10 236.0
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	GL-102	Iroquois, Ont.	1988-11-01	2003-10-31	7 506.9	2 740.0	42 646.0
		Niagara Falls, Ont.	1988-11-01	2003-10-31	283.3	103.4	
Amoco Canada Petroleum Company Ltd.	GL-112	Huntingdon, BC.	1989-07-24	1989-10-31	704.0	70.4	3 856.0
			1989-11-01	2004-10-31	704.0	257.0	
Amoco Canada Resources Limited	GL-108	Emerson, Man.	1989-03-16	1989-10-31	422.5	96.8	1 504.0
			1989-11-01	2001-10-31	422.5	154.0	
Amoco Canada Resources Limited and Consolidated Edison Company	GL-127	Niagara Falls, Ont.	1990-07-27	1990-10-31	873.0	84.7	4 728.0
			1990-11-01	2004-10-31	873.0	319.0	4 778.0
BC Gas Inc.	GL-123(a)	Huntingdon, BC.	1989-11-09	1992-04-30	1 703.0	61.3	184.0
Canadian Hunter Exploration Ltd.	GL-107	Niagara Falls & Iroquois, Ont.	1990-11-01	2010-10-31	845.0	254.0	3 381.0
Canadian-Montana Pipe Line Company	GL-25	Aden/Cardston, Alta, Emerson, Man. & Niagara Falls, Ont.	1968-11-01	1969-10-31	339.9	103.4	4 890.8
			1969-11-01	1991-10-31	679.9	206.8	
			1991-11-01	1993-10-31	390.9	119.0	
	GL-72	Aden, Alta.	1988-01-01	1988-10-31	1 133.1	236.1	1 085.7
			1988-11-01	1990-10-31	1 416.4	283.3	
			1990-11-01	1991-10-31	1 416.4	188.7	
			1991-11-01	1992-10-31	1 416.4	94.3	
	GO-3-79	Reagan Field, Alta.	1979-05-01	1993-12-31	30.0	10.3	105.0
Canstates Gas Marketing and Transco Energy Marketing Company	GL-137	Niagara Falls, Ont.	1990-11-08	1991-10-31	1 371.1	449.7	5 593.8
			1991-11-01	2000-10-31	1 371.1	459.3	
			2000-11-01	2002-10-31	1 371.1	500.4	

Gas

4. (Cont'd)Licences and Long-Term Orders to Export Natural Gas as at 31 December 1990

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Canterra Energy Ltd.	GL-113	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 099.1
			1989-11-01	2003-10-31	424.9	155.1	
	GL-114	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 246.4
			1989-11-01	2004-10-31	424.9	155.1	
Direct Energy Marketing Limited	GL-132	Philipsburg, Que.	1990-07-27	1990-10-31	171.0	16.6	936.2
			1990-11-01	2005-10-31	171.0	62.4	
			2005-11-01	2006-06-30	171.0	41.4	
Esso Resources Canada Ltd. and Transco Energy Marketing Company	GL-136	Niagara Falls, Ont.	1990-11-08	1991-10-31	2 125.0	76.1	9 307.5
			1991-11-01	2002-10-31	2 125.0	775.6	
FSC Resources Ltd.	GL-138	Napreville, Que.	1991-03-01	1991-10-31	1 530.0	374.9	8 376.8
			1991-11-01	2005-10-31	1 530.0	556.5	
ICG Transmission Holdings Ltd.	GL-28	Sprague, Man.	1970-11-01	1995-10-31	80.3	9.5	229.0
	GL-29	Fort Frances, Ont.	1970-11-01	1995-10-31	915.6	218.5	5 462.2
	GL-30(b)	Sprague, Man.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
ICG Utilities (Ontario) Ltd.	GL-130(b)	Sprague, Man.	1990-07-27	1990-10-31	640.0	62.1	3 150.0
			1990-11-01	2005-10-31	640.0	210.0	
Indeck Gas Supply Corporation	GL-133	Niagara Falls, Ont.	1990-07-27	1990-10-31	810.0	78.6	3 500.0
			1990-11-01	2005-10-31	810.0	293.0	
KannGaz Producers Ltd.	GL-77	Niagara Falls, Ont.	1987-11-01	1996-10-31	3 540.0	1 292.1	13 567.0
			1996-11-01	1997-10-31	2 655.0	969.1	
			1997-11-01	1998-10-31	1 770.0	646.0	
			1998-11-01	1999-10-31	885.0	323.0	
Many Islands Natural Gas (Canada) Limited	GL-44(c)	Emerson, Man.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
Niagara Gas Transmission Limited	GL-78	Cornwall, Ont.	1987-11-01	1990-10-31	1 200.0	275.0	1 099.7
			1990-11-01	1991-10-31	799.2	183.1	
			1991-11-01	1992-10-31	399.2	91.6	
Norcen Energy Resources Limited	GL-115	Emerson, Man.	1989-08-24	1989-10-31	396.6	27.4	1 841.0
			1989-11-01	2001-10-31	396.6	144.5	
	GL-116	Emerson, Man.	1990-05-03	1990-10-31	184.1	33.5	1 034.0
			1990-11-01	1994-10-31	184.1	67.2	
			1994-11-01	2001-10-31	283.3	104.8	
North Canadian Oils Limited	GL-142	Emerson, Man.	1990-11-08	1991-10-31	283.3	101.4	1 068.8
			1991-11-01	2000-10-31	283.3	103.4	

Gas

4. (Cont'd)Licences and Long-Term Orders to Export Natural Gas as at 31 December 1990

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
North Canadian Oils Limited(Cont'd)	GL-143	Emerson,Man.	1990-11-08	1991-10-31	283.3	101.4	1 068.8
			1991-11-01	2000-10-31	283.3	103.4	
Pan-Alberta Gas Ltd.	GL-95	Emerson, Man. & Niagara Falls, Ont. combined maximum	1987-11-01	1996-10-31	4 332.5	1 581.4	16 604.7
			1996-11-01	1997-10-31	3 249.4	1 186.0	
			1997-11-01	1998-10-31	2 166.2	790.7	
			1998-11-01	1999-10-31	1 083.1	395.4	
		Maximum permitted at Niagara Falls, Ont. as part of combined Emerson/Niagara Falls volumes	1987-11-19	1996-10-31	1 442.7	526.6	
			1996-11-01	1997-10-31	1 082.1	394.9	
			1997-11-01	1998-10-31	721.3	263.3	
			1998-11-01	1999-10-31	360.7	131.7	
	GL-97	Monchy, Sask.	1984-12-20	1985-10-31	24 928.5	7 582.8	75 296.7
			1985-11-01	2001-10-31	24 928.5	8 294.4	
	GL-106	Kingsgate, BC.	1988-11-01	2012-10-31	7 478.6	2 488.3	59 719.2
Poco Petroleums Ltd.	GL-117	Emerson, Man.	1989-08-24	1989-10-31	708.2	48.9	2 843.5
			1989-11-01	2000-10-31	708.2	258.5	
	GL-118	Emerson, Man.	1989-08-24	1989-10-31	708.2	48.9	2 715.3
			1989-11-01	2000-10-31	708.2	258.5	
ProGas Limited	GL-81	Emerson, Man.	1987-11-01	1990-10-31	5 270.0	1 923.5	15 026.7
			1990-11-01	1991-04-30	5 270.0	953.9	
			1991-05-01	1991-10-31	4 561.8	839.4	
			1991-11-01	1996-10-31	4 561.8	1 665.0	
			1996-11-01	1997-10-31	3 244.3	1 184.1	
			1997-11-01	1998-10-31	1 926.8	703.2	
			1998-11-01	1999-10-31	609.3	222.4	
	GL-98	Emerson, Man. & Monchy, Sask. combined maximum	1986-08-13	1986-10-31	9 440.9	2 583.2	35 492.8
			1986-11-01	1987-10-31	7 552.7	2 480.0	
			1987-11-01	2000-10-31	9 440.9	3 100.0	
		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	1986-08-13	1986-10-31	6 797.4	2 480.0	17 746.4
			1986-11-01	1987-10-31	3 776.3	1 240.0	
			1987-11-01	2000-10-31	4 720.4	1 550.0	
	GL-101	Niagara Falls, Ont.	1989-05-01	1989-10-31	1 420.0	260.6	10 340.0
			1989-11-01	2009-10-31	1 420.0	517.0	
	GL-109	Niagara Falls & Iroquois, Ont.	1991-05-01	1991-10-31	708.2	130.3	5 170.0
			1991-11-01	2011-10-31	708.2	258.5	
	GL-129	Niagara Falls,Ont.	1990-07-27	1990-10-31	2 861.1	277.5	15 665.3
			1990-11-01	2005-10-31	2 861.1	1 044.3	

4. (Cont'd)Licences and Long-Term Orders to Export Natural Gas as at 31 December 1990

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
Ramarro Resources Inc.	GL-139	Niagara Falls,Ont.	1990-11-08	1991-10-31	169.0	60.5	925.5
			1991-11-01	2005-10-31	169.0	61.7	
Shell Canada Limited	GL-100	Highwater, Que.	1987-11-01	1998-10-31	1 110.0	300.0	5 900.0
			1998-11-01	1999-03-31	1 110.0	167.6	
		Niagara Falls, Ont.	1987-11-01	1998-10-31	1 390.0	400.0	
			1998-11-01	1999-03-31	1 390.0	209.9	
	GL-119	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 234.0
			1989-11-01	2003-10-31	424.9	155.1	
	GL-120	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 250.0
			1989-11-01	2004-10-31	424.9	155.1	
	GL-134	Niagara Falls,Ont.	1990-07-27	1990-10-31	450.0	43.6	2 755.0
			1990-11-01	2010-10-31	450.0	145.0	
			2010-11-01	2011-08-31	450.0	95.8	
TransCanada PipeLines Limited	GL-20	Emerson, Man.	1967-11-01	1991-10-31	2 662.8	909.3	21 670.8
	GL-21(d)	Emerson, Man.	1968-11-05	1991-10-31	N/S	7 019.1	169 967.0
	GL-42(d)	Emerson, Man.	1971-04-15	1971-10-31	N/S	232.8	60 316.5
			1971-11-01	1994-10-31	N/S	2 612.3	
	GL-43	Emerson, Man.	1971-11-01	1991-10-31	N/S	481.6	9 631.5
	GL-83	Niagara Falls, Ont.	1984-11-01	1986-10-31	1 133.1	414.0	16 371.0
			1986-11-01	2002-10-31	2 620.3	959.0	
			2002-11-01	2003-01-15	2 620.3	199.1	
	GL-84	Niagara Falls, Ont.	1987-11-01	1988-10-31	142.0	51.8	2 378.0
			1988-11-01	1997-10-31	708.0	258.4	
	GL-86	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
			1998-11-01	1999-10-31	708.2	259.2	
	GL-87	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
			1998-11-01	1999-10-31	708.2	259.2	

Gas

4. (Cont'd)Licences and Long-Term Orders to Export Natural Gas as at 31 December 1990

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
TransCanada PipeLines Limited(Cont'd)	GL-89	Emerson, Man.	1984-11-01	1985-10-31	6 317.1	524.1	12 960.8
			1985-11-01	1986-10-31	6 317.1	1 957.3	
			1986-11-01	1990-10-31	6 317.1	2 096.3	
			1990-11-01	1991-10-31	4 207.2	1 396.1	
			1991-11-01	1992-10-31	2 103.6	698.1	
	GL-90	Niagara Falls, Ont.	1987-11-01	1988-10-31	1 416.4	518.4	5 443.2
			1988-11-01	1991-05-01	1 416.4	517.0	
	GL-110	Niagara Falls & Iroquois, Ont.	1991-05-01	1991-10-31	708.2	130.3	5 443.2
			1991-11-01	2012-10-31	708.2	258.5	
	GL-121	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 326.5
			1989-11-01	2003-10-31	424.9	155.1	
	GL-122	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 326.5
			1989-11-01	2004-10-31	424.9	155.1	
	GL-135	Gananoque,Ont.	1990-07-27	1990-10-31	1 445.0	140.2	7 910.0
			1990-11-01	2005-10-31	1 445.0	529.0	
Union Gas Limited	GL-92	Windsor, Ont.	1985-11-01	1990-10-31	1 100.0	284.0	1 703.7
			1990-11-01	1991-10-31	732.6	189.1	
			1991-11-01	1992-10-31	366.3	94.6	
Vector/7 Producers	GL-140	Niagara Falls, Ont.	1990-11-08	1991-10-31	892.3	319.6	5 025.6
			1991-11-01	2005-10-31	892.3	325.8	
Westcoast Energy Marketing Ltd.	GL-131	Huntingdon & Kingsgate,B.C.	1990-08-28	1990-10-31	4 524.8	294.1	23 228.0
			1990-11-01	2004-10-31	4 524.8	1 651.6	
Western Gas Marketing Limited	GL-128	Cornwall,Ont.	1990-07-27	1990-10-31	331.0	32.1	1 820.0
			1990-11-01	2005-10-31	331.0	121.3	
	GL-141	Emerson,Man.	1990-11-08	1991-10-31	424.9	152.1	2 326.5
			1991-11-01	2005-10-31	424.9	155.1	

a - This licence authorizes an export of natural gas at Huntingdon, B.C. for storage in the U.S. and for subsequent import through exchange arrangements with other exporters.

b - This licence authorizes an export of natural gas near Sprague, Manitoba for import near Rainy River, Ont.

c - This licence authorizes the export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.

d - This licence authorizes an export of natural gas near Emerson, Manitoba for import near Sault Ste-Marie and Sarnia, Ont., to serve the eastern Canadian Market.

Gas

5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1990

Importer	Licence or Order Number	Point of Import	Term of Licence or Order From	To	Maximum Volumes Daily (10^3m^3)	Annual (10^6m^3)	Term (10^6m^3)
B.C. Gas Inc.	GL-123(d)	Huntingdon, BC.	1989-11-09	1992-04-30	1703.0	61.3	184.0
Canadian Western Natural Gas Company Limited	GO-117-88	Coutts, Alta.	1989-01-01	2005-12-31	30.0	N/S	N/S
ICG Transmission Holdings Ltd.	GL-30(a)	Rainy River, Ont.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
ICG Utilities (Ontario) Ltd.	GL-130(a)	Rainy River, Ont.	1990-07-27	2005-10-31	640.0	210.0	3 150.0
Many Islands Natural Gas (Canada) Limited	GLI-5(b)	Willow Creek, Sask.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
TransCanada PipeLines Limited	GL-21(c)	Sault Ste. Marie and Sarnia, Ont.	1968-11-05	1990-11-07	N/S	7 019.1	169 967.0
			1990-11-08	1991-10-31	N/S	11 954.7	
	GL-42(c)	Sault Ste. Marie and Sarnia, Ont.	1971-04-15	1971-10-31	N/S	232.8	60 316.5
			1971-11-01	1994-10-31	N/S	2 612.3	

a - This licence authorizes an import of natural gas which the licensee has exported near Sprague, Man.
b - This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Manitoba, pursuant to Licence GL-44.
c - This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Manitoba. This natural gas serves Canadian markets.
d - This licence authorizes an import of natural gas which the licesee has previously exported for storage in the U.S. The import occurs through exchange arrangements with other exporters.
N/S Not specified.

Gas

6. Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1990

Exporter	Licence or Order Number	Points of Export	Points of Import	Term of Licence or Order From	Term of Licence or Order To	Maximum Volumes Annual (m^3)	Maximum Volumes Term (m^3)
PROPANE							
Amoco Canada Petroleum Company Ltd. (Export)	GL-32	Can/US Border (a)		1971-01-01	1972-12-31	92 698	4 281 799
				1973-01-01	1973-12-31	569 761	
				1974-01-01	1974-12-31	519 682	
				1975-01-01	1975-12-31	506 190	
				1976-01-01	1976-12-31	483 571	
				1977-01-01	1977-12-31	456 825	
				1978-01-01	1993-12-31	92 698	
				1994-01-01	1994-12-31	77 206	
Dome Petroleum Limited (Export)	GL-31	Can/US Border (a)		1971-01-01	1972-12-31	133 254	9 757 486
				1973-01-01	1973-12-31	924 999	
				1974-01-01	1974-12-31	870 078	
				1975-01-01	1975-12-31	847 301	
				1976-01-01	1976-12-31	812 936	
				1977-01-01	1977-12-31	775 793	
				1978-01-01	1978-12-31	744 761	
				1979-01-01	1979-12-31	716 983	
				1980-01-01	1980-12-31	688 571	
				1981-01-01	1981-12-31	656 190	
				1982-01-01	1982-12-31	620 476	
				1983-01-01	1986-12-31	133 254	
				1987-01-01	1987-12-31	143 809	
				1988-01-01	1988-12-31	193 016	
				1989-01-01	1989-12-31	196 984	
				1990-01-01	1990-12-31	169 047	
				1991-01-01	1991-12-31	165 873	
				1992-01-01	1992-12-31	165 079	
				1993-01-01	1993-12-31	162 098	
				1994-01-01	1994-12-31	103 968	
ETHANE							
Dome Petroleum Limited (Export)	GL-51 (b)(c)	Export-Elmore, Sask. Re-Export - Windsor, Ont.	Windsor, Ont.	1979-06-21	1979-12-31	1 287 000	19 069 000
				1980-01-01	1980-12-31	1 090 000	
				1981-01-01	1981-12-31	935 000	
				1982-01-01	1982-12-31	1 114 000	
				1983-01-01	1983-12-31	1 241 000	
				1984-01-01	1984-12-31	1 424 000	
				1985-01-01	1985-12-31	2 000 000	
				1986-01-01	1986-12-31	2 731 000	
				1987-01-01	1987-12-31	2 304 000	
				1988-01-01	1988-12-31	1 891 000	
				1989-01-01	1989-12-31	1 301 000	
				1990-01-01	1990-12-31	765 000	
				1991-01-01	1991-12-31	602 000	
				1992-01-01	1992-12-31	280 000	
				1993-01-01	1993-12-31	104 000	

Gas

6. (cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1990

Exporter	Licence or Order Number	Points of Export	Points of Import	Term of Licence or Order From	Term of Licence or Order To	Maximum Volumes Annual (m^3)	Maximum Volumes Term (m^3)
ETHYLENE						**Kilograms**	
Dow Chemical of Canada Limited (Export)	EYL-1-76 (d)	Elmore, Sask. Sarnia, Ont. Windsor, Ont.	Sarnia, Ont. Windsor, Ont.	1980-01-01	1989-12-31	158 757 340	1 587 573 400
Dow Chemical of Canada Limited (Export/Import)	EYL-2-76 (d)	Elmore, Sask.	Windsor, Ont.	1978-01-01	1997-12-31	181 438 810	N/S

a - For each licence or order the Canada/US Border export points include one or more of the following ports: Elmore, Sask., Gretna, Man., Sarnia and Windsor, Ont.

b - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.

c - Authorized exports of ethane in each year during the period 1982-01-01 to 1985-12-31 shall be reduced by the equivalent quantity of "make-up" volumes exported under Licence GL-47 which is in excess of 392 728 m .

d - This is an export licence which authorizes the export of ethylene at Elmore, Sask., and at Sarnia and Windsor, Ontario. All or a portion of the quantity of ethylene exported at Elmore, Sask., may be imported at Sarnia and Windsor, Ontario for subsequent re-export at Sarnia and Windsor, Ont.

N/S Not specified

Gas

7. Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
AEC Oil and Gas Company	GO-98-89	.1	2.6	2.7
Alberta and Southern Gas Co. Ltd.	GL-99	10 856.9	10 848.9	43 388.2
	GO-132-90	.0	12.1	12.1
Amoco Canada Petroleum Company Ltd.	GL-112	27.9	167.8	195.8
	GO-80-88	143.4	1.6	173.7
	GO-122-89	1.4	.0	1.4
	GO-124-89	25.6	7.6	33.1
	GO-1-90	.0	107.9	107.9
	GO-78-90	.0	.2	.2
	GO-79-90	.0	24.5	24.5
	GO-80-90	.0	1.0	1.0
Amoco Canada Resources Limited	GL-108	49.2	129.2	178.4
	GO-15-87	17.8	.0	42.1
	GO-16-87	.0	.0	94.1
	GO-66-87	.0	.0	4.6
	GO-94-88	101.8	.0	125.1
	GO-95-88	1.9	.0	1.9
	GO-16-89	81.2	21.6	102.8
Atcor Ltd.	GO-51-90	.0	12.6	12.6
BC Gas Inc.	GL-123(g)	.0	3.2	3.2
	GO-59-89(a)	60.6	.0	60.6
Bonus Gas Processors Corp.	GO-109-87	.0	.0	2.8
	GO-88-88	13.1	6.0	19.3
	GO-63-90	.0	4.5	4.5
BP Resources Canada Limited	GO-68-88	7.0	.0	33.5
	GO-24-89	12.0	63.3	75.4
	GO-42-90	.0	7.3	7.3
British Columbia Petroleum Corporation	GO-12-89	457.4	.0	457.4
	GO-104-89	124.1	365.6	489.6
	GO-123-89	281.5	405.8	687.3
Brymore Gas (Canada) Inc.	GO-88-89	9.4	22.3	31.6
	GO-15-90	0	237.8	237.8
Canadian Hunter Explorations Ltd.	GO-81-90	.0	68.4	68.4
Canadian Hydrocarbons Limited	GO-10-88	22.1	.0	350.3
	GO-9-89	269.5	23.7	293.2
	GO-12-90	0	271.1	271.1
	GO-87-90	.0	7.3	7.3
Canadian Occidental Petroleum Ltd.	GO-102-87	.0	.0	4.9
	GO-18-88	103.3	21.9	158.4
	GO-37-90	.0	64.8	64.8

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
Canadian-Montana Pipe Line Company	GL-17	.0	.0	3 035.3
	GL-25	.0	.0	3 516.3
	GL-72	275.4	240.2	736.7
	GO-3-79	4.7	4.4	37.0
CanStates Gas Marketing	GO-146-90	.0	2.5	2.5
	GO-54-90	.0	5.3	5.3
Canterra Energy Ltd.	GL-113	37.3	130.2	167.5
	GL-114	.0	93.4	93.4
	GO-10-87	.0	.0	9.0
	GO-108-87	.0	.0	21.4
	GO-14-88	51.7	14.0	84.6
	GO-70-89	1.9	27.5	29.4
	GO-14-90	.0	77.1	77.1
Canwest Gas Supply Inc.	GO-52-90	.0	695.5	695.5
Carvin Natural Gas Marketing Ltd.	GO-114-88	92.9	.0	100.9
Cherhill Resources Limited	GO-22-88	.0	.0	27.7
Chevron Canada Resources Limited	GO-105-87	.0	.0	.8
	GO-86-88	.0	.0	3.7
	GO-117-90	.0	.2	.2
Consolidated Natural Gas Limited	GL-75	1 003.5	.0	2 295.8
Czar Resources Ltd.	GO-28-88	80.2	.0	175.6
	GO-41-90	.0	3.4	3.4
Dekalb Petroleum Corporation	GO-57-89	48.2	142.7	190.9
Direct Energy Marketing Limited	GO-107-90	.0	.1	.1
Encor Energy Corporation Inc.	GO-107-87	.0	.0	1.1
Enron Gas Marketing	GO-126-90	.0	10.8	10.8
Esso Resources Canada Limited	GO-74-89	.0	8.5	8.5
	GO-34-90	.0	.1	.1
Esso Resources Canada Ltd. and Transco Energy Marketing Company	GL-82	.0	.0	1 810.5
	GL-136	.0	123.5	123.5
	GO-38-88	104.2	.0	559.4
	GO-28-89	235.4	.0	235.4
	GO-117-89	64.2	502.3	566.5
Grand Valley Gas Company	GO-112-89	4.4	33.4	37.7
	GO-142-89	2.1	4.8	6.8
	GO-35-90	.0	40.9	40.9
	GO-103-90	.0	21.9	21.9
	GO-104-90	.0	70.5	70.5
Hadson Canada Inc.	GO-90-87	.0	.0	1.6

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
Husky Oil Operations Ltd.	GO-153-89	.0	2.9	2.9
ICG Transmission Holdings Ltd.	GL-28	.0	.0	129.7
	GL-29	.0	.0	2 690.3
	GL-30(b)	197.8	234.2	5 045.9
	GO-96-88	87.3	.0	107.8
	GO-99-88	7.8	.0	10.4
	GO-113-89	3.4	7.8	11.2
	GO-115-89	23.6	91.8	115.4
	GO-70-90	.0	2.9	2.9
	GO-71-90	.0	39.0	39.0
ICG Utilities (Ontario) Ltd.	GL-130(b)	.0	.8	.8
Imperial Oil Limited	GO-91-88(c)	100.6	31.9	132.4
KannGaz Producers Ltd.	GL-77	117.5	241.1	413.7
	GO-34-89	7.8	.0	7.8
	GO-75-89	11.4	51.9	63.3
	GO-45-90	.0	125.8	125.8
KM Gas Company	GO-37-89	.8	.9	1.7
Koch Hydrocarbons Canada	GO-101-87	.0	.0	5.5
Many Islands Natural Gas (Canada) Limited	GL-44(d)	410.2	436.0	7 412.2
Mobil Oil Canada	GO-11-88	656.6	.0	1 136.9
	GO-102-88	3.8	.0	3.8
	GO-109-89	.0	2.1	2.1
	GO-129-89	.0	786.9	786.9
	GO-139-89	2.0	16.3	18.3
	GO-145-89	.0	110.2	110.2
	GO-49-90	.0	7.3	7.3
	GO-50-90	.0	19.2	19.2
	GO-75-90	.0	.7	.7
Natgas Canada Inc.	GO-30-90	.0	27.4	27.4
Niagara Gas Transmission Limited	GL-78	239.0	226.9	745.2
	GO-16-90	.0	3.1	3.1
Norcen Energy Resources Limited	GL-115	39.2	133.6	172.8
	GL-116	.0	45.2	45.2
	GO-51-89	4.3	.0	4.3
North Canadian Oils Limited	GO-65-88	56.2	159.5	225.0
	GO-69-89	16.2	177.1	193.2
	GO-61-90	.0	140.7	140.7

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
Northcan Energy Inc.	GO-30-88	18.8	.0	24.9
	GO-3-89	379.8	35.4	415.2
Northridge Petroleum Marketing, Inc.	GO-79-89(e)	13.2	172.7	185.9
	GO-80-89	.2	4.1	4.3
	GO-72-90	.0	2.1	2.1
Northwest Pacific Energy Marketing Inc.	GO-115-88	109.1	115.2	229.1
Pan-Alberta Gas Ltd.	GL-97	2 807.1	7 265.7	20 936.2
	GL-106	2 480.4	2 478.6	5 373.8
	GO-48-87	1 954.6	.0	7 711.3
	GO-8-88	57.9	1.6	370.7
	GO-67-89	2 129.3	65.4	2 194.7
	GO-21-90	.0	.4	.4
Petro-Canada Inc.	GO-113-88	60.2	.0	60.2
	GO-25-89	187.1	228.1	415.2
	GO-105-90	.0	65.8	65.8
Placer Cego Petroleum	GO-19-87	.0	.0	31.3
	GO-115-87	.0	.0	1.8
	GO-15-88	55.5	7.5	100.8
	GO-15-89	9.8	.0	9.8
	GO-36-90	0	50.7	50.7
Poco Petroleums Ltd.	GL-117	.0	78.3	78.3
	GL-118	.0	76.3	76.3
	GO-72-87	43.9	8.0	57.4
	GO-74-87	.0	.0	135.9
	GO-110-88	560.3	511.3	1 131.8
	GO-53-89	21.7	100.2	121.9
	GO-54-89	.0	.1	.1
	GO-13-90	.0	48.7	48.7
ProGas Limited	GL-98	1 718.1	1 331.1	5 390.2
	GL-101	.0	76.5	76.5
	GO-85-87	.0	.0	322.0
	GO-24-88	.0	.0	3.4
	GO-118-89	47.5	766.8	814.4
	GO-127-89	3.7	2.3	6.0
	GO-24-90	.0	160.7	160.7
Sceptre Resources Limited	GO-81-89	.1	1.2	1.3
Shell Canada Limited	GL-100	194.7	223.4	487.9
	GL-119	44.9	120.3	165.2
	GL-120	.0	88.0	88.0
	GO-4-88	.0	.0	.1
	GO-16-88	21.9	16.8	40.0
	GO-25-88	324.7	66.6	487.4

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
Shell Canada Limited(cont'd)	GO-119-88	140.5	.0	140.5
	GO-63-89	2.9	.0	2.9
	GO-9-90	.0	17.0	17.0
	GO-28-90	.0	334.5	334.5
	GO-39-90	.0	44.4	44.4
Suncor Inc.	GO-112-87	65.9	.0	144.6
	GO-29-89	200.7	338.4	539.1
	GO-39-89	.1	.0	.1
Tarpon Gas Marketing Ltd.	GO-2-88	.0	3.6	4.7
	GO-10-90	.0	235.9	235.9
TransCanada PipeLines Limited	GL-18	.0	.0	20 552.8
	GL-19	131.3	.0	2 522.3
	GL-20	.0	.0	14 384.7
	GL-21(f)	6 680.4	7 007.8	131 236.0
	GL-37	165.2	146.7	29 336.5
	GL-38	.0	.0	6 770.7
	GL-39	.0	.0	915.0
	GL-42(f)	2 486.3	2 257.6	42 327.8
	GL-43	441.5	437.6	2 214.9
	GL-83	943.0	842.0	3 942.3
	GL-84	36.0	77.5	132.5
	GL-86	.8	.0	.8
	GL-87	.8	.0	.8
	GL-89	.0	.0	604.0
	GL-121	44.7	120.4	165.1
	GL-122	.0	83.9	83.9
	GO-37-87	1 332.6	.0	4 503.2
	GO-111-87	280.7	.0	644.1
	GO-23-88	26.6	.0	138.0
	GO-11-89	162.1	240.2	402.3
	GO-14-89	11.4	14.7	26.1
	GO-50-89	2 755.2	3 515.7	6 270.9
	GO-83-89	.0	13.5	13.5
	GO-108-89	46.1	187.7	233.8
	GO-147-89	.8	213.3	214.2
Unigas Corporation	GO-19-89	66.9	331.4	398.3
	GO-93-89	171.8	710.4	882.2
	GO-112-90	.0	1.1	1.1
Unocal Canada Limited	GO-75-88	.0	.0	6.1
	GO-152-89	.0	27.4	27.4
Vector Energy Inc.	GO-78-89	.0	82.4	82.4
Wainoco Oil Corporation	GO-55-87	.0	.0	46.1
	GO-120-89	18.2	86.3	104.5
	GO-108-90	.0	4.6	4.6
Westcoast Energy Ltd.	GL-41	1 545.0	.0	80 071.8

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
Westcoast Energy Marketing Ltd.	GL-131	.0	309.8	309.8
	GO-44-89	37.4	27.1	64.5
	GO-116-89	166.5	399.4	565.9
Western Gas Marketing Limited	GO-63-88	.1	.0	28.4
	GO-151-89	.2	.3	.4
	GO-66-90	.0	122.3	122.3
	GO-95-90	.0	17.5	17.5
GROSS EXPORTS		**47 866.6**	**50 709.3**	**482 306.1**
NET EXPORTS(h)		**37 916.9**	**40 565.1**	**295 902.3**

a - This order authorizes an export of natural gas for storage in the U.S. and for subsequent import through exchange arrangements with other exporters.
b - This licence authorizes an export of natural gas near Sprague, Man. for import near Rainy River, Ont.
c - This order authorizes an export of natural gas near Emerson, Man. in exchange for an import of ethane by Dome Petroleum Limited and Amoco Canada Petroleum Company Ltd. near Sarnia, Ont.
d - This licence authorizes an export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.
e - This order authorizes an export of natural gas for subsequent import on order GO-92-89.
f - This licence authorizes an export of natural gas near Emerson, Man. for import near Sault Ste. Marie and Sarnia, Ont. to serve eastern Canadian markets.
g - This licence authorizes an export of natural gas for storage in the U.S. and for subsequent import.
h - Excludes volumes of licences/orders under footnotes.

Gas

8. Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
Access Energy Corporation	GO-102-89	3.5	12.7	16.2
Alcor Ltd.	GO-99-89	14.9	.0	14.9
BC Gas Inc.	GL-123(g)	.0	92.3	92.3
	GO-105-88(a)	59.8	0	60.0
	GO-30-89(a)	.7	0	.7
	GO-59-89(b)	1.1	0	1.1
Canadian Western Natural Gas Company Limited	GO-70-88	1.0	0	1.2
	GO-117-88	.8	.5	1.3
	GO-87-89	.5	.2	.7
	GO-60-90	.0	1.5	1.5
Centra Gas Manitoba Inc.	GO-113-90	.0	.6	.6
Gaz Metropolitain, Inc.	GO-29-90	8.5	22.8	31.3
	GO-48-90	.0	22.5	22.5
	GO-69-90	.0	.3	.3
ICG Transmission Holdings Ltd.	GL-30(c)	197.8	234.2	5 045.9
ICG Utilities (Ontario) Ltd.	GL-130(c)	.0	.8	.8
	GO-103-88	42.8	11.9	54.7
	GO-146-88	.0	13.6	13.6
	GO-62-90	.0	0	.0
Many Islands Natural Gas (Canada) Limited	GLI-5(d)	417.2	425.8	7 507.0
Natural Gas Clearinghouse	GO-26-90	.0	27.4	27.4
Natural Resource Gas Limited	GO-77-89	3.4	.0	3.4
Northridge Petroleum Marketing, Inc.	GO-45-88	.0	0	.9
	GO-92-89(e)	13.2	46.8	59.9
	GO-141-89(i)	.0	52.0	52.0
	GO-40-90(h)	.0	17.4	17.4
	GO-106-90(i)	.0	14.0	14.0
St. Clair Pipelines Ltd.	GO-71-88	20.6	.0	56.4
	GO-109-88	58.8	.0	58.8
	GO-47-89	58.9	.0	58.9
	GO-111-89	20.4	14.9	35.3
Tarpon Gas Marketing Ltd.	GO-94-89	18.5	34.3	52.8
	GO-68-90	.0	4.2	4.2
The Consumers' Gas Company Ltd.	GO-40-89	9.0	.0	9.0
	GO-41-89	29.2	.0	29.2
	GO-97-89	45.0	30.9	76.0
	GO-143-89	.0	57.7	57.7

Gas

8. (cont'd) Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1989 Actual	1990 Preliminary	Cumulative to 31 December 1990
TransCanada PipeLines Limited	GL-21(f)	6 680.4	7 420.8	131 589.1
	GL-42(f)	2 486.3	1 598.3	41 740.9
Unigas Corporation	GO-121-89	3.2	39.4	42.5
	GO-47-90	.0	11.5	11.5
Union Enterprises Ltd.	GO-121-87	.0	.0	54.0
	GO-41-88	.0	.0	51.7
Union Gas Limited	GO-39-88	.0	.0	60.0
	GO-50-88	.0	.0	60.0
	GO-66-88	.0	.0	60.0
	GO-77-88	.0	.0	60.0
	GO-100-88	.0	.0	60.0
	GO-103-88	.0	.0	60.0
	GO-118-88	56.5	.0	60.0
	GO-7-89	44.4	.0	44.4
	GO-31-89	60.0	.0	60.0
	GO-45-89	60.0	.0	60.0
	GO-52-89	60.0	.0	60.0
	GO-60-89	60.0	.0	60.0
	GO-61-89	60.0	.0	60.0
	GO-62-89	1.1	22.9	24.0
	GO-66-89	60.0	.0	60.0
	GO-71-89	60.0	.0	60.0
	GO-76-89	60.0	.0	60.0
	GO-86-89	45.6	.0	45.6
	GO-91-89	60.0	.0	60.0
	GO-95-89	22.9	0	22.9
	GO-110-89	53.2	0	53.2
	GO-136-89	4.6	55.4	60.0
	GO-137-89	.0	60.0	60.0
	GO-138-89	.0	13.8	13.8
Western Gas Marketing Limited	GO-59-88	23.4	.0	93.3
	GO-101-88	51.0	.0	51.0
	GO-90-89	12.4	23.6	36.1
	GO-149-89	.0	60.1	60.1
	GO-150-89	.0	.0	.0
GROSS IMPORTS		**11 050.6**	**10 445.1**	**188 493.9**
NET IMPORTS (j)		**1 194.1**	**542.7**	**2 312.8**

a - This order authorizes an import of natural gas at Huntingdon, B.C. previously exported by Westcoast on behalf of the order holder.

b - This order authorizes the import of natural gas at Huntingdon, B.C. which the holder has previously exported for storage in the U.S. The import occurs through exchange arrangements with other exporters.

c - This licence authorizes an import of natural gas which the licensee has previously exported near Sprague, Man.

d - This licence authorizes an import of natural gas for subsequent export near Emerson, Man. pursuant to licence GL-44.
e - This order authorizes an import of natural gas which was previously exported under order GO-79-89.
f - This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Man. This natural gas serves Canadian markets.
g - This licence authorizes an import of natural gas at Huntington, B.C. which the licensee has previously exported for storage in the U.S.
h - This order authorizes an import of natural gas at Sarnia, Ont. which the holder has previously exported.
i - This order authorizes an import of natural gas at St.Clair,Ont. which the holder has previously exported.
j - Excludes volumes of licences/orders under footnotes.

Gas

9. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1989 Actual	1990 Preliminary
PROPANE			
Amoco Canada Petroleum Company Limited	GL-32	92 698	92 698
Dome Petroleum Limited	GL-31	196 984	169 047
NET EXPORTS (c)		**289 682**	**261 745**
ETHANE			
Dome Petroleum Limited	GL-51(a)	744 248	800 900
GROSS EXPORTS		**744 248**	**800 900**
NET EXPORTS (c)		**0**	**0**
		Kilograms	
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (b)	161 089 355	0
GROSS EXPORTS		**161 089 355**	**0**
NET EXPORTS (c)		**0**	**0**

a - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.

b - This licence/order authorizes an export of product for subsequent import.

c - Excludes volumes of licences under footnotes .

Gas

10. Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1989 Actual	1990 Preliminary
ETHANE			
Dome Petroleum Limited	GL-51(a)	623 021	0
	GO-8-89 (c)	100 337	N/A
	GO-64-89(c)	93 532	N/A
	GO-43-89	N/A	633 830
	GO-134-89	N/A	62 932
GROSS IMPORTS		**816 890**	**696 762**
		Kilograms	
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (b)	161 089 355	0
GROSS IMPORTS		**161 089 355**	**0**
NET IMPORTS (d)		**0**	**0**

a - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.

b - This licence/order authorizes an import of product which has been previously exported.

c - This order authorizes an import of ethane at Sarnia, Ont. in exchange for natural gas exported at Emerson, Man. by Imperial Oil Limited.

d - Excludes volumes of licences /orders under footnotes.

N/A Not Applicable

Gas

11. Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butanes	
	1989 Actual	1990 Preliminary	1989 Actual	1990 Preliminary
Amoco Canada Petroleum Company Ltd. (a)	1 817 756	1 757 700	1 113 030	1 032 600
Atlantic Speedy Propane Limited	2 570	6 700	N/A	N/A
Burnwell Gas of Canada Ltd.	35 385	40 700	N/A	N/A
Canadian Enterprise Gas Products Ltd.	19 527	18 400	45 392	26 200
CanPet Marketing Ltd.	11 190	15 300	12 973	2 200
CanStates Energy	48 719	104 800	194 931	236 300
Chevron Canada Resources	9 211	40 000	19 474	0
Commonwealth Petroleum Co.	36 802	22 500	N/A	N/A
Consumers' Co-Operative Refineries Ltd.	875	0	0	500
Desticon Gas Liquids Enterprises Ltd.	0	3 500	0	8 400
Dominion Propane Corp.	0	3 600	N/A	N/A
Elbow River Resources Ltd.	116	2 100	10 728	8 900
Elgin Resources Limited	1 730	N/A	N/A	N/A
Energy Transportation Inc.	11 960	8 800	21 648	11 500
Enron Liquids Marketing Canada Ltd.	15 681	11 300	9 358	6 700
Ferrell Petroleum Inc.	3 967	N/A	N/A	N/A
Ferrell Gas	7 188	7 100	N/A	N/A
Gibson Gas Liquids Ltd.	3 909	300	5 293	19 100
Gulf Canada Resources Ltd.	89 237	167 500	97 849	102 900
Home Oil Company Limited	46 111	18 800	89 420	12 400
ICG Liquid Gas Ltd.	20 213	10900	N/A	N/A
Imperial Oil Limited	292 325	260 500	273 595	263 300
Irving Oil Limited	0	100	5 079	0
Koch Hydrocarbon Canada	8 629	4700	23 314	5600
L.P.G. Resources Canada Inc.	0	100	1 792	0
M-P. Oils Ltd	69 567	63 600	8 583	700
Mobil Oil Canada	71 632	53 300	69 060	29 900
NGL Supply (1985) Ltd.	29 730	79 100	13 846	5 000
Norcal Gas Liquids Ltd.	0	6 200	N/A	N/A
PanCanadian Gas Products Ltd. (a)	154 575	121 500	106 931	102 000
Petro-Canada Hydrocarbons Inc.	567 560	427 300	353 794	264 200
Petrogas Marketing Ltd.	16 960	35 700	11 844	17 500
Petromont Inc.	31 404	38 400	3 861	0
Petrowest Petroleum Ltd.	45 047	25 200	17 980	12 000
Shell Canada Products Ltd.	184 987	167 500	158 966	210 600
Stittco Energy Ltd.	8 769	9 600	3 765	2 000
Suburban Gas, Inc.	0	3 100	N/A	N/A
Suncor Inc.	3 174	0	6 044	4 900
Texaco Canada Inc.	59 674	10 600	33 283	4 800
Texaco Producing Inc.	1 429	0	N/A	N/A
Unocal Canada Ltd.	2 104	1700	10 119	2 700
Westcan Energy Ltd.	21 639	0	N/A	N/A
TOTAL	**3 751 352**	**3 548 200**	**2 721 952**	**2 392 900**

a - Includes net export volumes under licences.
N/A Not Applicable

Gas

12. Natural Gas Volumes Authorized for Export (Millions of Cubic Metres)

New Licences Issued and Extensions to Existing Licences (a)	Volume 1988	Number of Years	Volume 1989	Number of Years	Volume 1990	Number of Years
Alberta and Southern Gas Co. Ltd.			116 385.0	11		
Amoco Canada Petroleum Co. Ltd.			3 856.0	15		
Amoco Canada Petroleum Ltd. and Consolidated Edison Company					4 778.0	14
B.C. Gas Inc.			184.0	3		
Canadian Hunter Explorations Ltd.	3 381.0	20				
CanStates Gas Marketing and Transco Energy Marketing Company					5593.8	12
Canterra Energy Ltd.			2 099.1	14		
			2 246.4	15		
Dome Petroleum Limited			1 504.0	12		
Direct Energy Marketing Limited					936.2	16
Esso Resources Canada Limited and Transco Energy Marketing Company					9307.5	12
FSC Resources Ltd.					8376.8	14
ICG Utilities (Ontario) Limited					3150.0 (b)	15
Indeck Gas Supply Corporation					3500.0	15
Norcen Energy Resources Limited			2 875.0	12		
North Canadian Oils Limited					2137.6 (c)	10
Pan-Alberta Gas Ltd.	59 719.2 (d)	24				
Poco Petroleums Ltd.			5 558.8	11		
ProGas Limited			5 170.0 (c)	20	15 665.3 (c)	15
			23 315.0	6		
Ramarro Resources Inc.					925.5	15
Shell Canada Limited			2 234.0 (e)	14	2755.0	21
			2 250.0 (e)	15		
TransCanada PipeLines Limited	5 443.2 (c)	21				
Vector Energy Inc.					5025.6	15
Westcoast Energy Inc.					23228.0 (c)	15
Western Gas Marketing Limited			2 326.5	14	12056.5	15
			2 326.5	15		
			6 307.0	7		

a - Based on Governor-in-Council approval date.
b - Export volumes authorized on condition of re-import.
c - Does not include any incremental volumes.
d - Only 45 600 10 m represents incremental volumes.
e - Of the total 4484 $10^6 m^3$ authorized under the two licences, 3284 $10^6 m^3$ is incremental volumes.

Electricity

1. Certificates and Orders Issued During 1990 in Respect to International Power Lines

No Certificates or Orders were issued.

Electricity

2. Amending Orders Issued During 1990 Relating to International Power Lines

Applicant	Order No.	Issued	Comments
Hydro-Québec	AO-1-EC-III-22	90-03-29	A change in the conductor size in order to increase the transfer capacity of the line.

Electricity

3. Licences Issued During 1990 Relating to the Export of Electricity

Applicant	Licence No.	Class	Megawatts	Annual Gigawatt Hours	Term From	Term To	Hearing Commenced	Issued
Hydro-Québec	EL-179	Firm	50	350	90-11-01	95-08-31	90-02-9	90-08-24
	EL-180	Firm	200	1 402	95-09-01	15-10-31	90-02-9	90-08-24
	EL-181	Firm	57	400	90-11-01	12-10-31	90-02-9	90-08-24
	EL-182	Firm	58	406	92-05-01	12-10-31	90-02-9	90-08-24
	EL-183	Firm	77	540	95-11-01	15-10-31	90-02-9	90-08-24
	EL-184	Firm	58	406	96-11-01	20-10-31	90-02-9	90-08-24
	EL-185	Firm	1 000	7 028	95-05-01	16-04-30	90-02-9	90-08-24

Electricity

4. Permits and Orders Issued During 1990 Relating to the Export of Electricity

4(a) Orders Issued Pursuant to Section 7 of the Part VI Regulations.

Applicant	Order No.	Class	Kilowatts	Annual Megawatt Hours	Term From	Term To	Issued
Canadian Niagara Power Company Limited	ELO-274	Firm	45 000	200 000	90-03-22	90-12-31	90-03-22
Ontario Hydro	ELO-273	Firm	3 000	15 000	90-04-01	93-03-31	90-01-18

Electricity (Cont'd)

4(b) Permits Issued Pursuant to the NEB Act Amended 1 June 1990.

Applicant	Permit No.	Class	Kilowatts	Annual Megawatt Hours	Term From	Term To	Issued
B.C. Hydro	EPE-02	Firm	5 472	16 088	90-10-01	93-09-30	90-08-30
Canadian Niagara Power Company Limited	EPE-08	Firm	45 000	200 000	91-01-01	90-10-31	90-12-20
Cominco Ltd.	EPE-09	Carrier Transfer	-	50 000	91-01-01	93-12-31	90-12-20
	EPE-10	Firm	-	250 000	91-01-01	93-12-31	90-12-20
	EPE-11	Interruptible	-	1 000 000	91-01-01	93-12-31	90-12-20
	EPE-12	Circulating Energy	-	1 000 000	91-01-01	93-12-31	90-12-20
Fraser Inc.	EPE-07	Firm	60 000	400 000	91-01-01	93-12-31	90-11-29
Hydro-Québec	EPE-04	Firm	240	480	90-11-01	95-10-31	90-10-17
	EPE-05	Firm	240	480	90-11-01	95-10-31	90-10-17
	EPE-06	Firm	40	80	90-11-01	95-10-31	90-10-17
N.B. Power	EPE-01	Firm	7 000	22 128	90-06-01	90-10-31	90-07-30
	EPE-03	Carrier Transfer	3 400	10 000	90-10-01	91-01-31	90-09-27
West Kootenay Power and Light Company, Limited	EPE-13	Firm	50	50	91-01-01	20-12-31	90-12-20

4(c) Amending Orders Relating to Export Licences

Applicant	Order No.	Issued	Comments
British Columbia Hydro and Power Authority	AO-4-EL-162	90-09-13	Modification to the term of the licence.
	AO-2-EL-163	90-09-13	Modification to the term of the licence.
	AO-1-EL-164	90-09-13	Modification to the term of the licence.
Hydro-Québec	AO-2-EL-154	90-09-13	Authorization to export over any international power line authorized by the Board.
N.B. Power	AO-2-EL-137	90-10-01	Modification to the term of the licence.
	AO-2-EL-139	90-10-01	Modification to the term of the licence.
	AO-9-EL-140	90-10-01	Modification to the term of the licence.
	AO-2-EL-141	90-10-01	Modification to the term of the licence.
	AO-2-EL-143	90-10-01	Modification to the term of the licence.
	AO-1-EL-144	90-10-01	Modification to the term of the licence.
	AO-2-EL-145	90-10-01	Modification to the term of the licence.

Electricity

5. Exports 1990 (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
NEW BRUNSWICK								
Fraser Inc.	ELO-214 *	400 000	--	312 615	--	--	17 550 658	--
Maine and New Brunswick Electrical Power Company, Limited	EL-177	200 000	--	144 715	--	--	3 392 681	--
New Brunswick Power	EL-137	876 000	--	837 686	--	- 7 361	44 880 709	--
	EL-138	876 000	--	837 686	--	- 7 361	49 266 455	--
	EL-139	92 000	--	54 230	--	- 2 939	3 398 143	--
	EL-140	--	6 482 400(b)	--	1 618 012	- 13 088	--	60 413 024
	EL-141	1 226 400	--	--	--	65 291	--	--
	EL-142	140 000	--	--	--	--	--	--
	EL-143	--	300 000	--	160 223	35 613	--	6 981 783
	EL-144	250 000	--	--	--	17 894	--	--
	EL-145	--	179 000	--	10 178	- 235	--	358 045
	EL-150	1 138 000	--	209 421	--	- 1 840	12 316 601	--
	ELO-228	250 000	--	--	--	--	--	--
	ELO-244	--	--	--	--	--	--	--
to	ELO-246	445	--	277	--	--	24 366	--
	EPE-01 *	22 128	--	337	--	--	59 679	--
	EPE-03	10 000	--		--	5 208	--	--
TOTAL				**2 396 967**	**1 788 413**	**91 182**	**130 889 293**	**67 752 852**

Electricity

5. (cont'd) Exports 1990 (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
QUEBEC								
Hydro-Québec	EL-96	3 000 000	--	3 000 000	--	--	99 453 363	--
	EL-151	--	11 000 000	--	--	--	--	--
	EL-152	--	23 564 000(c)	--	68 247	--	--	1 592 838
	EL-153	--	23 564 000(c)	--	124 190	-1 695 124	--	6 182 049
	EL-154	11 220 000	--	2 644	--	--	136 969	--
	EL-156	25 000	--	--	--	--	--	--
	EL-165	--	3 000 000	--	--	36 787	--	--
	EL-166	--	4 000 000	--	--	--	--	--
	EL-167	--	6 920 000(d)	--	220 115	- 32 969	--	5 329 044
	EL-168	1 314 000	--	955 275	--	--	40 606 129	--
	EL-169	--	1 752 000(e)	--	389	- 3 070	--	18 278
	EL-171 *	230 600	--	85 636	--	--	4 310 587	--
	EL-172 *	657 000(f)	--	--	--	--	--	--
	EL-175 *	438 000	--	346 878	--	--	8 099 899	--
	EL-179	350 000	--	29 436	--	--	1 378 639	--
	EL-181	400 000	--	45 626	--	--	2 233 199	--
	ELO-223	--	946 000(g)	--	66	--	--	27 946
	ELO-224	400 000	--	--	--	--	--	--
	EPE-04	--	--	--	--	--	--	--
	to EPE-06	--	--	--	--	--	--	--
	and ELO-230	--	--	--	--	--	--	--
	to ELO-237	3 595	--	1 297	--	--	81 434	--
	ELO-254 *	51 300	--	11 902	--	--	1 378 304	--
	ELO-255	400 000	--	205 916	--	--	9 185 194	--
TOTAL				4 684 610	413 007	-1 694 376	166 863 717	13 150 155

Electricity

5. (cont'd) Exports 1990 (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
ONTARIO								
Boise Cascade Canada Ltd.	EL-265	--	175 000	--	88	--	--	4 303
Canadian Niagara Power Company Limited	EL-269	--	250 000	--	--	187 863	--	--
	EL-270	--	200 000	--	14 786	12 373	--	495 604
	EL-274	200 000	--	140 558	--	--	4 253 276	--
The Canadian Transit Company	EL-239	25	--	24	--	--	--	--
Cornwall Electric	EL- 267	--	30 000	--	7 956	--	--	211 074
	EL- 268	--	30 000	--	--	--	--	--
The Detroit and Windsor Subway Company	EL-252	2 000	--	1 341	--	--	--	--
Ontario Hydro	EL-134	--	10 000 000	--	--	1 064 059	--	--
	EL-135	10 500 000	--	87 427	--	--	4 979 917	--
	EL-136	--	25 000 000(h)	--	485 063	47 978	--	15 109 525
	EL-238	--	--	--	--	--	--	--
	and EL-273	15 200	--	954	--	--	3 519	--
TOTAL				**230 304**	**507 893**	**1 312 273**	**9 236 712**	**15 820 506**
MANITOBA								
The Manitoba Hydro-Electric Board	EL-97	--	1 800 000	--	870 343	--	--	9 793 588
	EL-98	876 000	--	115 544	--	--	5 243 555	--
	EL-99	262 800	--	143 685	--	--	2 407 891	--
	EL-100	800 000	--	--	--	--	--	--
	EL-101	2 500 000	--	--	--	--	--	--
	EL-102	249 000	--	--	--	--	--	--
	EL-103	--	12 000 000(i)	--	800 346	117 242	--	16 324 239
	EL-241	--						
	and EL-260	7 899	--	2 565	--	--	122 775	--
TOTAL				**261 794**	**1 670 689**	**117 242**	**7 774 221**	**26 117 827**

Electricity

5. (cont'd) Exports 1990 (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export ($)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
SASKATCHEWAN								
Saskatchewan	EL-118	438 000(j)	--	--	--	29 025	--	--
Power Corporation	EL-119	--	876 000(k)	--	59 586	33 223	--	744 807
	EL-120	876 000(k)	--	--	--	--	--	--
TOTAL				--	**59 586**	**62 248**	--	**744 807**
BRITISH COLUMBIA								
British Columbia	EL-162	6 000 000	--	1 108 707	--	--	30 933 832	--
Hydro and Power	EL-163	--	15 000 000(l)	--	2 785 254	754 524	--	65 429 263
Authority	EL-164	--	3 000 000	--	--	655 720	--	--
	ELO-251	--	--	--	--	--	--	--
and	ELO-225 *	17 100	--	12 731	--	--	568 341	--
	EPE-02	15 164	--	5 486	--	--	245 867	--
	(m)	--	--	--	--	334 120	--	--
Cominco Ltd.	ELO-216 *	50 000	--	--	--	--	--	--
	ELO-217 *	250 000	--	--	--	--	--	--
	ELO-218 *	--	1 000 000	--	568 736	2 575	--	11 131 843
	ELO-219 *	--	1 000 000	--	--	--	--	--
West Kootenay Power and Light Company, Limited	ELO-227 *	50	--	12	--	--	980	--
TOTAL				**1 126 936**	**3 353 990**	**1 746 939**	**31 749 020**	**76 561 106**
TOTAL CANADA(n)				**8 700 610**	**7 793 578**	**1 635 508**	**346 512 962**	**200 147 253**

a - Exchange includes inadvertent and circulating flow, equichange, storage, adjustment transfer, and wheeling or carrier transfer which normally do not have associated revenue.

b - Total exports should not exceed 6 482.4 GW.h less any amounts exported pursuant to another licence or order under which the energy is transmitted over the line authorized by Certificate EC-III-8.

c - Total exports should not exceed 23 564 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by Certificates EC-III-15 and EC-10.

d - Total exports should not exceed 6 920 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by Certificate EC-III-21.

e - Total exports should not exceed 1 752 GW.h less any amounts exported under Licence EL-168.

f - Total exports should not exceed 657 GW.h less any amounts exported under Licence El-171 and Orders ELO-223 and ELO-224.

g - Total exports should not exceed 946 GW.h less any amounts exported under Licences EL-171, EL-172 and Order ELO-224.

h - Total exports should not exceed 25 000 GW.h less any amounts exported under Licence EL-135.

i - Total exports should not exceed 12 000 GW.h less any amounts exported under Licences EL-97, EL-98, EL-99, EL-100, EL-101 and EL-102.

j - Energy to be returned.

k - Total exports under Licences EL-119 and EL-120 should not exceed 876 GW.h. when combined together.

l - Total exports should not exceed 15 000 GW.h less any amounts exported under Licence EL-162.

m - Energy exported in accordance with the Skagit River Valley Treaty which is not under the Board's jurisdiction.

n - Excludes $6 159 977 revenue for wheeling, transmission, unit rental and storage transfer charges.

* Expired during 1990.

Electricity

6. Electricity Trade Between Canada and the United States (a) (By Province, Gigawatt Hours)

PROVINCE	REGION / STATE	EXPORT (b)	IMPORT (c)	NET EXPORT (b) - (c)
New Brunswick	Maine	2301	48	2253
	Massachusetts	1885	0	1885
Total New Brunswick		**4186**	**48**	**4138**
Quebec	Vermont	1685	31	1654
	New England (d)	220	135	85
	New York	3193	2704	489
Total Quebec		**5098**	**2870**	**2228**
Ontario	Vermont	88	0	88
	New York	610	386	224
	Michigan	39	10957	-10918
	Minnesota	0	169	-169
Total Ontario		**737**	**11512**	**-10775**
Manitoba	Minnesota	1742	846	896
	North Dakota	190	194	-4
Total Manitoba		**1932**	**1040**	**892**
Saskatchewan	North Dakota	60	36	24
Alberta	Montana	0	3	-3
British Columbia	Montana	47	0	47
	Washington	280	34	246
	Oregon	853	0	853
	California	3192	0	3192
	Other (e)	109	0	109
Total British Columbia		**4481**	**34**	**4447**
TOTAL		**16494**	**15543**	**951**

Notes: (a) Sales and purchases only; excludes exchanges.
(b) Sales to the United States.
(c) Purchases from the United States.
(d) Trade with the New England Power Pool - quantities to each state cannot be accurately determined.
(e) Includes Idaho, Nevada and Alaska.

Electricity

7. Electricity Trade Between the United States and Canada (a) (By American Region / State, Gigawatt Hours)

REGION / STATE	PROVINCE	IMPORT (b)	EXPORT (c)	NET IMPORT (b) - (c)
New England				
Maine	New Brunswick	2301	48	2253
Massachusetts	New Brunswick	1885	0	1885
Vermont	Quebec	1685	31	1654
	Ontario	88	0	88
New England (d)	Quebec	220	135	85
Total New England		**6179**	**214**	**5965**
New York	Quebec	3193	2704	489
	Ontario	610	386	224
Total New York		**3803**	**3090**	**713**
Michigan	Ontario	39	10957	-10918
Midwest				
Minnesota	Ontario	0	169	-169
	Manitoba	1742	846	896
North Dakota	Manitoba	190	194	-4
	Saskatchewan	60	36	24
Total Midwest		**1992**	**1245**	**747**
Western				
Montana	Alberta	0	3	-3
	British Columbia	47	0	47
Washington	British Columbia	280	34	246
Oregon	British Columbia	853	0	853
California	British Columbia	3192	0	3192
Other (e)	British Columbia	109	0	109
Total Western		**4481**	**37**	**4444**
TOTAL		**16494**	**15543**	**951**

Notes: (a) Sales and purchases only; excludes exchanges.
(b) Purchases from Canada.
(c) Sales to Canada.
(d) Trade with the New England Power Pool - quantities to each state cannot be accurately determined.
(e) Includes Idaho, Nevada and Alaska.

Financial Regulation

1. Financial Information - Group 1 Oil Pipeline Companies

(a)

(b)	Cochin		Interprovincial		IPL(NW)		Trans Mountain		Trans-Northern		
1990	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	11.6	37.4	77.3	25.3	40.3	55.4	18.1	23.6	4.0	15.4	151.3
Depreciation	5.2	16.8	40.4	13.2	14.6	20.1	7.5	9.8	2.1	8.1	69.8
Operating & Mtce.	12.9	41.6	134.1	43.9	5.8	8.0	29.0	37.9	16.5	63.5	198.3
Taxes	1.3	4.2	53.5	17.5	12.0	16.5	22.0	28.7	3.4	13.1	92.2
Total	31.0	100.0	305.3	100.0	72.7	100.0	76.6	100.0	26.0	100.0	511.6
Capitalization of Rate Base (c)											
Debt	N/A (d)	N/A	384.0	60.1	201.2	69.5	77.1	50.0	17.1	44.9	679.4
Preferred	N/A (d)	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	N/A (d)	N/A	254.8	39.9	88.4	30.5	77.0	50.0	21.0	55.1	441.2
Total	45.3	100.0	638.8	100.0	289.6	100.0	154.1	100.0	38.1	100.0	1,165.9
Return on Common Equity											
Approved	N/A (d)(e)	N/A	33.8	13.25	14.1	16.00	10.8	14.00	2.9	13.75	
Actual	11.6 (f)	25.50	36.6	14.37	14.1	16.00	9.9	12.80	2.1	9.97	
1989	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	11.7	38.4	67.8	24.9	42.4	58.1	13.8	21.9	5.0	18.9	140.7
Depreciation	5.2	17.0	37.6	13.8	14.6	20.0	4.7	7.4	2.0	7.5	64.1
Operating & Mtce.	12.3	40.3	124.6	45.7	5.0	6.8	25.3	40.1	15.5	58.5	182.7
Taxes	1.3	4.3	42.4	15.6	11.0	15.1	19.3	30.6	4.0	15.1	78.0
Total	30.5	100.0	272.4	100.0	73.0	100.0	63.1	100.0	26.5	100.0	465.5
Capitalization of Rate Base (c)											
Debt	N/A (d)	N/A	380.9	61.1	216.0	70.9	48.2	50.0	17.6	46.3	662.7
Preferred	N/A (d)	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	N/A (d)	N/A	242.8	38.9	88.8	29.1	48.2	50.0	20.4	53.7	400.2
Total	48.4	100.0	623.7	100.0	304.8	100.0	96.4	100.0	38.0	100.0	1,111.3
Return on Common Equity											
Approved	N/A (d)(e)	N/A	32.2	13.25	14.2	16.00	6.7	14.00	2.8	13.75	
Actual	11.7 (f)	24.22	28.0	11.52	14.2	16.00	8.5	17.70	2.9	14.22	

a - Based on preliminary estimates.

b - Full names of companies are listed in Companies Under National Energy Board Jurisdiction.

c - Excludes construction work in progress.

d - Not applicable as company is financed on a joint venture basis.

e - Not applicable as company is on a complaint basis.

f - Before interest and taxes.

Financial Regulation

2. Financial Information - Group 1 Gas Pipeline Companies

(a)

(b)	Alberta Natural Gas		Foothills		TQM		TransCanada		Westcoast		
1990	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	2.6	9.2	76.4	46.6	47.6	68.6	365.5	37.5	95.4	32.8	587.5
Depreciation	1.2	4.2	18.5	11.3	13.1	18.9	118.2	12.1	30.8	10.6	181.8
Operating & Mtce.	22.0	77.7	41.2	25.1	6.4	9.2	363.7	37.3	101.1	34.7	534.4
Taxes	2.5	8.8	27.9	17.0	2.3	3.3	128.0	13.1	63.9	21.9	224.6
Total	28.3	100.0	164.0	100.0	69.4	100.0	975.4	100.0	291.2	100.0	1,528.3
Capitalization of Rate Base (c)											
Debt	12.9	65.2	398.4	69.4	267.8	75.0	1,798.6	59.7	506.4	61.0	2,984.1
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	309.6	10.3	33.2	4.0	342.8
Common Equity	6.9	34.8	176.0	30.6	89.3	25.0	903.5	30.0	290.5	35.0	1,466.2
Total	19.8	100.0	574.4	100.0	357.1	100.0	3,011.7	100.0	830.1	100.0	4,793.1
Return on Common Equity											
Approved	N/A (d)	N/A	25.1	14.25	12.3	13.75	119.7	13.25	39.9	13.75	
Actual	1.0	12.17	25.1	14.25	13.3	14.87	120.6	13.35	38.0	13.07	

1989	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	($000 000)	(%)	Total
Revenue Requirement											
Return	2.3	8.3	76.1	44.0	49.4	69.9	321.6	34.3	92.7	33.9	542.1
Depreciation	1.8	6.5	30.6	17.7	13.1	18.5	100.9	10.8	28.7	10.5	175.1
Operating & Mtce.	21.0	75.5	40.6	23.5	6.1	8.6	391.7	41.8	90.0	33.0	549.4
Taxes	2.7	9.7	25.8	14.9	2.1	3.0	124.0	13.2	61.7	22.6	216.3
Total	27.8	100.0	173.1	100.0	70.7	100.0	938.2	100.0	273.1	100.0	1,482.9
Capitalization of Rate Base (c)											
Debt	10.8	65.1	414.9	71.1	277.0	75.0	1,438.5	57.4	477.3	60.7	2,618.5
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	314.9	12.6	33.7	4.3	348.6
Common Equity	5.8	34.9	168.5	28.9	92.4	25.0	751.4	30.0	275.1	35.0	1,293.2
Total	16.6	100.0	583.4	100.0	369.4	100.0	2,504.8	100.0	786.1	100.0	4,260.3
Return on Common Equity											
Approved	N/A (d)	N/A	24.0	14.25	12.7	13.75	109.3	13.75	37.8	13.75	
Actual	1.1	18.41	24.0	14.25	13.7	14.79	109.7	14.60	38.1	13.96	

a - Based on preliminary estimates.

b - Full names of companies are listed in Companies Under National Energy Board Jurisdiction.

c - Excludes construction work in progress.

d - Not applicable as company is on a complaint basis.

Senior Staff of the Board

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Don Emmens, Director
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